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### ABSTRACT

This document is a progress report on effecting educational change in a kindergarten program and its interim research findings. A general description of the program and its background are given, followed by an explanation of the diagnostic-prescriptive approach taken in the program. This explanation includes descriptions of the rationale for instruction, the role of the kindergarten teacher, staff development, and instructional materials. The report gives the strategy design for evaluating the program, which includes extensive observations made in the classroom. Certain obstacles were encountered in carrying out this evaluative design; however, and the revised objectives of the project are stated. The list of recommendations emphasizes expanded use of the diagnostic-prescriptive approach through curricular and staff development, the involvement of the Department of Curriculum and Instruction, and commitment of time, personnel, and funds toward the use of a diagnostic-prescriptive approach in instruction. The final recommendation is for the school system to establish pilot classrooms to study issues related to kindergarten education. (MH)

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# CHILD STUDY—KINDERGARTEN, 1968-69

AN INFORMATION REPORT

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**CHILD STUDY—KINDERGARTEN, 1968-69  
AN INFORMATION REPORT**

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## SUMMARY AND RECOMMENDATIONS

This is a progress report of the Child Study-Kindergarten Program initiated and supervised by the Center for Effecting Educational Change (CEEC) during the 1968-69 school year and interim research findings therefrom.

The findings clearly point to areas which need further review and analysis. They also lead to the several recommendations and accompanying rationale for each, which follow:

. It is recommended that curricular and staff development for kindergarten receive priority during the next several years and be directed by a specialist in early childhood education who is well versed in current theory and research.

This recommendation arises from evidence that the division-wide kindergarten program is in continuing need of research answers. The program, established in September, 1968, used various elements of research resulting from the Center's pilot kindergarten program of 1967-68 and elementary school principals and teachers continued to call upon the CEEC Coordinator of Early Childhood Research during 1968-69 for various types of consultative services. Further, according to experts in the field of early childhood who are providing educators with hard data on the complexity and importance of early childhood development, one or two years of study in the area of kindergarten is insufficient.

. It is recommended that the Department of Curriculum and Instruction become involved in the further development of diagnostic-prescriptive programs.

An individualized prescriptive program, using base data on the characteristics of Fairfax County five-year-olds in the areas assessed during 1968-69, is being developed by CEEC. If this research is to be of real and lasting benefit, however, it should become only the first step in a comprehensive approach which requires the concentration of personnel for the period of each child's experience in Fairfax County Public Schools.

. Directly related to the foregoing recommendation, a three-part recommendation is made -

1. that there be a commitment of time, personnel, and funds toward developing and using a diagnostic-prescriptive approach in instruction;

2. that the instructional staff of the school system become informed about concepts underlying the diagnostic-prescriptive framework and involved in further development and use of this approach;

3. that the instructional staff begin work on dimensions not yet assessed, i.e., cognitive *per se* and gross motor (the CEEC program calls for refinement and validation of that portion of the diagnostic framework developed during 1968-69), and that there be a clear delineation of responsibilities to



accommodate this work.

A relatively structured diagnostic procedure was developed and administered by CEEC members to assess language skills, visual discrimination skills, visual discrimination skills with motor expression, motor expression skills, quantitative skills, and general intelligence factors. Test data therefrom are currently undergoing factor analysis to determine whether the tests did indeed measure the dimensions being explored. Based on experience in the program thus far, it can be concluded that this kind of evaluative framework is particularly advantageous in helping teachers focus on specific kinds of task-related behavior. But experience also indicates that most teachers need assistance in understanding and using such a diagnostic framework.

It is recommended that pre- and in-service programs for kindergarten and primary teachers begin to focus on the development and use of diagnostic-prescriptive techniques and that any such pre- and in-service sessions be planned so that an active dialogue between teachers and leaders will take place. It is further recommended that teachers be trained in observational analysis, accomplishing this, in addition to other means, through the use of video taping. In this connection, however, no video tape should be shown to any group without first having been viewed by the teacher involved; also, all tapes need not be viewed by all personnel.

Experiences during the CEEC Child Study-Kindergarten Program thus far indicate that the diagnostic-prescriptive approach to individualized instruction demands a great deal of pre- and in-service training to familiarize teachers with the highly different approaches and techniques required.

Several aspects of CEEC's experience in this connection are worthy of comment because of the contributions they made not only to teacher preparation itself but to the development of the program as a whole: First, if an active dialogue is encouraged between teachers and teacher training leaders, both receive feedback that is meaningful and relevant to their roles. In being involved, teachers become more committed to a program which they then can help refine and reshape. In promoting two-way communication, leaders get back information which points to strengths and weaknesses in the program structure at that point and allows for a shift in direction. Second, observational techniques employing video tape in analysis of the instructional program, the classroom environment, and peer group interaction seemed, in CEEC's experience, to lead toward changed teacher behavior. There should be a relatively structured procedure employed in the scheduling and use of the tapes by teachers, principals, and supervisors.

Developed and carried out as thus described, the CEEC pre- and in-service training sessions apparently held little, if any, threat to the teachers concerned.

As another important aspect of pre- and in-service training, it is recommended that the Fairfax County Public Schools continue the dialogue on early childhood education with colleges and universities so that greater articulation may be experienced between the various units of teacher preparation at individual institutions as well as between various institutions; and, also, so that local school systems may have an opportunity for greater involvement in studies of current theory and application, of proposed course content, and finally of the specific needs of local schools. Such dialogue must be characterized by openness on both sides and not geared toward preservation of the *status quo*.

As stated in other CEEC kindergarten reports, the gap between theory and practice is widened by the pressure of time and operational needs in the day-to-day school situation. As with other school systems, the widening gap, in turn, throws ever greater burdens on an already overburdened in-service program. Current research findings, therefore, are often and necessarily by-passed.

. It is recommended that pre-service sessions should also emphasize the function and purpose of specific items of equipment and also that this subject be given continuing emphasis during in-service training throughout the school year. Provision should be made for identification, field testing, and evaluation of new equipment and materials. Further evaluation of the effectiveness of equipment presently in use in each kindergarten should be carried out during the 1969-70 year.

Following the CEEC pilot kindergarten classes of 1967-68, a basic list of kindergarten equipment was drawn up. All classrooms were later equipped in exactly the same way. During the process monitoring in 1968-69, however, it was apparent that many teachers did not understand the purposes of much of the instructional material provided nor have a comprehensive conceptualization of its sequential use. Such conceptualization should be a part of in-service programs and, in addition, further study and research of equipment, specifically of differentiation of instructional materials, should be launched.

. Finally, it is recommended that the school system establish pilot classes to research varying lengths of the kindergarten school day as well as to carry out patterns of staffing and class organization. The following questions should be posed:

How is the instructional program affected by the length of the school day, specifically, by the two-and-a-half-hour day, the five-hour day, and the regular elementary school day?

What content should the various lengths provide?

What pace, balance of activities, types of equipment, and materials?

When and how long should the rest periods be, the snack periods, lunch?

How does the school day affect class size and staffing?

When the Virginia Board of Education began plans for state-wide kindergarten, it established a state regulation calling for a five-hour-day for all classes. The Fairfax County Board of Education, accordingly, began plans to work toward the five-hour kindergarten day as rapidly as possible and so communicated to the State Board.

No research exists, however, which validates developmental gains to be expected during kindergarten days of varying lengths. In other words, there is no research concerning what children should achieve during a two-and-a-half hour day, during a four-hour day, or a five-hour day. Nor is there any research which says which programs are just as effective for a shorter day than they are for a longer.



## CHILD STUDY—KINDERGARTEN, 1968-69: BACKGROUND

The Center for Effecting Educational Change (CEEC) in 1967-68 developed and supervised a pilot kindergarten program in preparation for implementation of kindergarten on a county-wide basis. Two reports describing this program, *Kindergarten 1967-68: An Evaluation Report* and *The Change Process in Action: Kindergarten*, were prepared by CEEC. A third publication, *Kindergarten Instruction: A Guide for Teachers*, was prepared by the Department of Curriculum and Instruction, with the assistance of teachers who had participated in the CEEC pilot program.

Also during 1967-68, the Center was involved in a need and feasibility assessment in child study to determine the most pressing needs in that area in county schools. As a result, CEEC's Coordinator of Child Study and the child study team concluded that Fairfax County Public Schools and Fairfax County children would benefit by a program aimed at prevention of learning problems rather than at remedial measures after problems had come to the fore. It was decided, therefore, that the child study program would take this shape.

Heuristic questions raised by research findings of the pilot kindergarten program, as well as by need and feasibility findings of the child study area, pointed to the already established fact that very early childhood years are indeed crucial and that early educational experiences, because of their lasting and significant effect, should be comprehensive. (Many authorities have written on this point, but the following is particularly relevant: ". . . the longitudinal studies of educational achievement indicate that approximately 50 per cent of general achievement of grade 12 has been reached by the end of grade three. This suggests the great importance of the first few years of school as well as the preschool period in the developing of learning patterns and general achievement. These are the years in which general learning patterns develop most rapidly, and failure to develop appropriate achievement and learning in these years is likely to lead to continued failure or near failure throughout the remainder of the individual's school career. The implications for more powerful and effective school environments in the primary school grades are obvious.")<sup>1</sup>

The child study program was to proceed on the basis that there is a need to isolate the causes of specific learning problems at the time of the school's first contact with children. This need is augmented by the fact that learning problems in the elementary school often spring from instruction which presupposes that necessary aptitudes have been developed when, in fact, this has not been the case.

The rationale of the pilot kindergarten program had been that five-year-

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<sup>1</sup>Benjamin S. Bloom, *Stability and Change in Human Characteristics*. John Wiley & Sons, New York, 1964. p 127.

olds learn and should be taught in settings and ways different from those of the elementary grades; and, further, that the young child responds constructively to a school setting which offers sensory and manipulatory experiences, opportunities for free verbal and physical expression, freedom to explore and to respond to his environment, and the guidance of a teacher who knows when and how to intervene in the learning process. It had called, in summary, for a new approach in kindergarten--one that would go through a sequential development of field testing, evaluation, and modification in light of practical experience.

These ideas were in complete harmony with the rationale behind the proposed child study program. And the implication behind both was that it is the inherent right of every child to receive an education designed to provide the fullest development of his individual potential.

With the CEEC kindergarten program entering Phase III of the systematic change procedure (i.e., assisting the school system in implementation of the county-wide program; providing continuing program review and evaluation support; and continuing study and analysis of classes in four schools) and its child study program entering Phase II (i.e., planning, development, and field testing a diagnostic-prescriptive program at the kindergarten level in four schools), a unique opportunity was provided the Center to research, plan, and develop a more nearly comprehensive approach to kindergarten. The focus of both programs was directed at kindergarten children and the objectives of both could be integrated and coordinated to provide an in-depth approach. It seemed self-evident that the two projects would gain mutual advantages from a pooling of personnel, time, materials, and funds. The decision was made, accordingly, to proceed with both programs as an integrated effort.

Working in cooperation with the Fairfax County Schools' Department of Curriculum and Instruction, the CEEC staff then developed research plans for the kindergarten and child study programs which would provide the means for systematic evaluation of the various units of the two. The research design merits special notice in this report because it was a deliberate effort to bridge any possible gap between planning-developing-evaluation and actual practice, individual pupils, and the day-by-day curriculum--the same bugbear that has so long separated research from practice. As thus developed cooperatively, the research plans provided the following:

- (1) full-time coordinators of child study and of kindergarten who were to be CEEC staff members;
- (2) full-time CEEC evaluation specialist;
- (3) part-time CEEC educational technologist and change specialist;
- (4) part-time local primary instructional supervisors for supporting services;
- (5) full-time local kindergarten teachers and aides in research classes at eight schools;
- (6) part-time local staff administrators and psychologists who would provide supporting services.

Emphasis in this approach was put on the development of practices and procedures which could be readily used and which could also be duplicated by

other schools in this system or other school systems. The approach also emphasized systematic withdrawal of CEEC's direction and support and development of local school responsibility for continued leadership in future program development.

There follows a brief outline of the research design for the 1968-69 Child Study-Kindergarten Program involving eight research schools and two control schools, together with objectives of the program, and an outline of program emphases:

#### KINDERGARTEN-CHILD STUDY PROGRAM

*KINDERGARTEN Mrs. Evelyn Valotto	*CHILD STUDY Dr. Richard Schillo	*COMBINED KINDERGARTEN AND CHILD STUDY Mrs. Valotto-Dr. Schillo	CONTROL SCHOOLS
**Edsall Park **Hollin Meadows  N=100	Herndon Mount Eagle Stratford Landing Westgate  N=200	Lake Anne Marshall Road  N=100	Bren Mar Mount Vernon Woods  N=100

\* Each school was to have two classes of approximately 25 pupils per class. The CEEC classes were to include 400 pupils and the control classes 100 pupils.

\*\* These schools were involved in the 1967-68 pilot kindergarten program.

The original specific objectives of the Child Study-Kindergarten Program were:

#### Child Study

1. To develop a relatively structured, evaluative procedure that could be followed by kindergarten and primary teachers to assess strengths and weaknesses of individual pupils.
2. To develop a sequential series of informal evaluative and monitoring guidelines that could be applied to the instructional program and the individual pupils to assess their growth and development in the program.
3. To begin to develop an instructional program consisting of a series of sequential, corrective learning tasks slanted to the needs of individual

*continued*

#### Kindergarten

1. To provide assistance to the Fairfax County Public Schools with implementation of the kindergarten program by providing consultative support in evaluation and program review.
2. To further delineate the characteristics of five-year-olds in the areas of motor development, visual-motor perception, auditory perception, concept formation, language development, and social and emotional development
3. To develop a broad outline of the learnings in certain curriculum areas--language, mathematics, and

*continued*

### Child Study

#### pupils

4. To begin to develop techniques for evaluating teacher-child interaction, including feedback to the teacher through which optimal teacher-pupil interaction with specific instructional content and techniques could evolve
5. To develop an end-of-year evaluation to serve as a next step, teaching prescription for the type of instruction needed for groups of pupils or for individual pupils for the following school year
6. To develop evaluative instruments to assess factors affecting the total program and introduce group testing instruments which teachers could use for assessment and planning for pupils
7. To begin to develop a plan for follow-up assessment of progress by children who were in the pilot program as they continued in the regular school program

### Kindergarten

#### social sciences

4. To develop organization-management routines related to storage and use of equipment and supplies
5. To develop in-service approaches which are meaningful to the teachers and bring about changed behavior in teaching
6. To design a framework for assessing the cognitive, language and physical development of the five-year-old and determine curricula to improve areas of pupil performance
7. To develop an environmental structure which provides optimal means for learning to occur for the individual child

The program as initially designed followed the outline shown on the next page.



School	Diagnostic Testing	Curriculum Development	Organization and Administration	In-service for Teachers and Aides
Edsall Park	Standardized test battery, including: Frostig Developmental Test of Visual Perception Wide Range Achievement Test Metropolitan Readiness Test Draw-A-Man Test Wepman Auditory Discrimination Test or related auditory discrimination Test  other standardized and locally constructed tests as needed	Special emphasis on the development of: mathematics language Development of other curriculum areas Kindergarten Evaluation Learning Program (KELP)	General organization CEEC in-service and management routines: storage and use of CEEC evaluation meetings equipment and supplies  CEEC Frostig Testing orientation  County-wide in-service Dr. Robison  Early Childhood Workshop	orientation to kindergarten  research design, testing, end-of-year evaluation
Hollin Meadows	Standardized test battery (see above)  other standardized and locally constructed tests as needed	Special emphasis on the development of: social studies language Development of other curriculum areas  Kindergarten Evaluation Learning Program (KELP)	Classroom organization  flexible grouping  team planning	Same in-service as indicated above



School	Diagnostic Testing	Curriculum Development	Organization and Administration	In-service for Teachers and Aides
Lake Anne	<p>Standardized test battery (see preceding) in addition to:</p> <p>Gesell Designs</p> <p>Interview with pupils</p> <p>Writing Names and Numbers</p> <p>Other standardized and locally constructed tests as needed</p>	<p>Special emphasis on team approach (teachers-supervisor) for the development of:</p> <p>mathematics</p> <p>language</p> <p>In addition, development of other curriculum areas</p> <p>Frostig Program for the Development of Visual Perception</p>	<p>General organization and management routines</p> <p>Special emphasis on: research design, testing, end-of-year</p> <p>Implementing Frostig evaluation developmental program into an existing kindergarten development program (Pilot Kindergarten, 1967-68)</p> <p>County-wide in-service Dr. Robison</p> <p>Early Childhood Workshop</p>	<p>CEECEC in-service orientation to kindergarten</p> <p>CEECEC evaluation meetings</p>
Marshall Road	<p>Standardized test battery (see preceding) in addition to:</p> <p>Gesell Designs</p> <p>Interview with pupils</p> <p>Writing Names and Numbers</p> <p>other standardized and locally constructed tests as needed</p>	<p>Special emphasis on team approach (teachers-supervisor) for the development of:</p> <p>social studies</p> <p>language</p> <p>other curriculum areas</p> <p>Frostig Program for the Development of Visual Perception</p>	<p>Classroom organization: flexible grouping</p> <p>team planning</p> <p>Implementing Frostig developmental program into an existing kindergarten program (Pilot Kindergarten, 1967-68)</p>	<p>Same in-service as indicated above</p>

School	Diagnostic Testing	Curriculum Development	Organization and Administration	In-service for Teachers and Aides
Herndon	Standardized test battery (see pre- ceding) in addition to:  Gesell Designs  Interview with pupils  Writing Names and Numbers  other standardized and locally constructed tests as needed	Implementing a kinder- garten program under supervision of area elementary supervisor  Implementing the Frostig Program for Development of Visual Perception into a developing kinder- garten curriculum	Developing organiza- tion and administra- tion procedures and routines for an area kindergarten program and for Frostig developmental program	Area in-service by elementary supervisor  CEEC in-service on Frostig testing and developmental program
Westgate	Same as above	Same as above	Same as above	Same as above
Mount Eagle	Same as above	Same as above, with psychologist working with area supervisor, CEEC staff, and school personnel	Same as above	Same as above
Stratford Landing	Same as above	Same as above, with assistant principal familiar with Frostig program working closely with area supervisor and CEEC staff	Same as above	Same as above

The following section of this report attempts to set up a theoretical framework for procedures followed in the Child Study-Kindergarten Program. The succeeding three sections pick up the story of the program itself in reporting on evaluation procedures, barriers encountered, objectives set up, and the success or lack of it in meeting them.



# THE DIAGNOSTIC-PRESCRIPTIVE APPROACH

## ***I. Rationale for Instruction***

Traditionally, the kindergarten day has been composed of a work-play period, with self-selected activities at learning centers by the children, or with total group activities. Equipment provided opportunities for a child to play individually, with another child, or with a group of children. Certain learning centers were regarded as essential and remained a part of the classroom environment from September to June. When activities were self-selected, a child might concentrate on one type of equipment or a learning center for extended periods of time. When instruction was given, it was usually geared to the total group. Teachers' rewards focused upon social and personal attributes of the children, not on task-related behavior. Curriculum in the academic disciplines was incidental and the result of children's interest rather than of plans for sequential development. Only recently has instruction in the academic disciplines, to small groups, begun to appear.

Questions are now being raised about the length of the school day, class size, the structure of the classroom environment, the desirability of direct instruction, the type of teacher rewards or reinforcements, and the place of cognitive development in the kindergarten. Also, educators are interested in knowing why evaluations in primary grades, throughout the country, indicate a lack of maintenance of skills learned in the kindergarten or pre-school program. No research is available which pinpoints the reason(s) for this deficiency.

These questions and concerns have fueled the controversy which has developed between those who advocate traditional methods and those who prefer the new experimental approaches. There is agreement among the latter, however, in regard to several aspects of the kindergarten program: the classroom environment is consciously structured, learning tasks are identified, teachers knowingly use reinforcements, and cognitive development is emphasized. All of these, in turn, affect the make-up of the school day.

In the diagnostic-prescriptive approach, certain skills are identified as developmental needs and direct instruction is planned to meet these needs, using equipment consciously chosen for an identified, specific purpose. The teacher works with a series of small groups or individuals and pre-plans for a week or longer. Continuous assessment of individual performance provides feedback for revision of lesson plans or of group membership.

The recognition that learning may occur without direct teacher intervention in the learning process itself focuses attention upon the structure of the environment. Not all learning centers are available every day or on a continuous basis and the materials within a center are phased in and out, depending upon an overall purpose. This could be illustrated by the housekeeping center, which customarily occupies a primary position in the kindergarten room. In the more structured approach, the teacher may set up the center to assess children's social level of play and to provide a setting for dramatic play of a spontaneous nature. After several weeks, if she is introducing shapes (circles,



squares, triangles) in math, she may let the children use play dough, roll it, and cut out cookies in these shapes. Then, she may replace the center with a grocery store or some other center. In any case, the materials within the center could be geared toward a definite instructional purpose and specific outcomes.

Since the classroom environment is composed of learning centers, the task of the teacher in organizing the materials, in determining what should be out for use, and in documenting their use seems overwhelming. It does demand systematic organization, management, and record keeping.

During the work-play period of a day, some children are occupied in self-selected tasks, the teacher selects tasks for other children, and direct instruction is given to still other individuals or small groups. Over a week's time, all children should have been involved with all learning centers available during this time.

Direct instruction may have many meanings in the kindergarten room. It may be on a concrete level or it may be on a symbolic level, involving the same equipment in both instances. Thus, a small instructional group may be composed of children engaged in the same activity but at different levels. An example of this occurs in developing visual discrimination, hand-eye coordination, and visual memory through patterning activities with beads.\* In reproducing the design, some children may need to be seated next to the teacher and watch her create the design, explaining the pattern as she does so. Others may be able to use the completed string (of varied complexity in shapes and colors) as a model. Still others may be able to use a picture as a guide for pattern reproduction.

Another type of direct instruction may require a more refined method of grouping, i.e., children at a comparable level of development in a skill area. During the work-play period, the teacher may ask five or six children to come to a table placed in a quiet corner of the room. The children have already mastered gross sounds and rhyming and are ready to work with the initial sound of words. On the table are small replicas of objects, such as a sink, a dog, a bat, or a telephone. Children may identify or select those whose names begin with the same letter as their own first names. Another group of children, meeting later, may have progressed beyond working with replicas and be identifying or selecting pictures of real objects whose names begin with the same sound.

In her planning, the teacher has identified what groups she will work with, the lesson purpose, and the materials needed. Her planning probably will cover a week or more. Consideration will be given to the type of direct instruction to be given on a particular day and the degree of quiet needed. If bead work, puzzles, and pegboards are to be used, block building can be going on at the same time. If instruction in beginning sounds is to be given, the block building center may be closed and children encouraged to paint, work at the sand-water table, go to the listening center, or engage in some other activity which has a lower noise level.

The length of the school day helps to determine the structure of the program. The staffing of the kindergarten room influences the extent to which the teacher can work with small groups and individuals. Paraprofessionals or volunteer help (either adults or older children) free the teacher from active

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\*See Appendix D.



supervision of the learning centers and allow her to concentrate on small instructional groups. Such aid also helps to assure that all assigned tasks (such as puzzles, pegboard, or bead patterning) are checked for correctness before they are disassembled and put away.

At the beginning of the school year, the teacher gives a series of tasks to each child, talks with the child individually, and observes the child performing certain tasks in a group.\* This initial diagnosis of developmental levels in language, quantitative skills and concepts, basic information, and sensory-motor skills helps to determine possible points of emphasis in developing a curriculum.

Such in-depth evaluation of a child's development is, unfortunately, sometimes superficial and hurriedly done. The teachers seem to feel that they are wasting time--they must be teaching. Teaching, however, should follow assessment. Only after assessment can *what* to teach and *where* to begin with a particular child be determined.

After the initial diagnosis, teaching and assessing go hand in hand. Then, the teacher often evaluates a child's progress and level as she teaches. There should continue to be times during the year, however, when the child is asked to perform a task without help and with a minimum of direction from the teacher. Only in this way can a child's real level of performance on certain tasks be determined.

Thus, teaching becomes both an art and a science. Intuition is not replaced by specific organizational, diagnostic, and teaching skills but is complemented by them. It is not enough, however, to have a love of children and a roomful of equipment. It is not enough to have the traditional, generalized, curriculum guide.

Curriculum designers heretofore have generally thought in terms of covering the entire scope and sequence of the curriculum. More recent identification of specific behavioral objectives has served to turn attention toward specifics in the curriculum and an analysis of the sequences of skill development.\* Math and science, for instance, have progressed rapidly in this direction and several commercial programs have been designed for a sequential development of skills in these areas. In concentrating on abilities related to their own specific areas, however, these programs make certain assumptions regarding competence or attainment in related developmental areas. This points up the fact that not only should curriculum specifics be analyzed and planned but the broad curriculum should continue to be examined to assure that relationships are recognized and, hence, adequate teaching occur. Some skills are a part of many disciplines but because of their subsidiary nature to each they receive no particular attention in any.

In designing a diagnostic-prescriptive curriculum a series of tasks must be accomplished:

identification of skill areas

---

\*See Appendix C.

\*Ibid.

analysis of component parts  
determination of diagnostic instruments or tasks  
planning of a procedure for initial testing  
determining the testing environment  
identification of tasks which can be used for continued assessment  
of a skill or skill area  
development of possible sequences  
identification of games and activities or teaching strategies  
specification of equipment or materials  
training of teachers, principals, and supervisors

The size of the task is obvious. It will require several years of concentrated effort before the individualized approach to curriculum can become a reality.



## **II. The Role of the Kindergarten Teacher**

Current learning theories advance the idea that there are optimal moments in every child's life for the learning of various skills. If the child's experiential background is insufficient for the learning to occur, then direct intervention and structuring of the environment is essential. If the intervention takes place too early, confusion and inability to accomplish the task may result. If it takes place too late, impairment of later performance occurs and the learning process is characterized by a much slower ascent up the ladder of sequential skills and an apparent need to extend activities related to each new acquisition.

These facts suggest that the role of the kindergarten teacher be redefined and the purposes of the classroom environment restated. Today's kindergarten teacher should be an educational diagnostician, with skill in determining points of mastery and level of performance in cognitive and academic areas as well as in the more traditional areas of social, emotional, and physical growth. She must determine a child's amount of learning and prescribe a curriculum which will enable him to acquire those skills on which acquisition of later skills must depend. She must have a knowledge of educational goals and objectives and the expertise for analyzing the educational process and subdividing it into learning steps. Finally, she must be a master at gathering, organizing and recording, and using the data required in structuring the environment and thus the curriculum.

The classroom environment must reflect an understanding of how learning takes place and of the sequences involved in the process. The structuring of the class day becomes important because the work-play period must assume a prominent position; it is during this part of the day that individual and small group diagnosis and direct instruction in academic skills take place. A planned and prepared environment provides for spontaneous play, geared toward self-selected activities, and teacher intervention, when needed, to clarify a concept, introduce an idea, or help move the play beyond a particular level. In general, the environment must be structured so that it facilitates and encourages the development of skills.

Diagnostic evaluations are of two types: (1) initial evaluations to determine what the child's skills are and (2) assessments which precede, accompany, and follow teaching. The former are made during the first weeks of school, and the latter as a continuous process throughout the year.

Teachers of young children often resist the notion of an organized diagnosis of children's skills and achievement. Precise data from focused observation of children as they perform certain tasks, answer questions, or manipulate material new to them are essential if the curriculum is to be meaningfully designed. Observations may concern performance with a standardized task (test) or behavior during small group instruction. Both contribute highly important, diagnostic data for a structured curriculum, direct teaching, and teacher

intervention.

These terms may lead one to visualize a formalized classroom, dominated by a teacher who uses the age-old approach of question-answer-drill as her primary method. Nothing could be further from the fact. Play is the young child's way of learning. It must be seen as the most important access to development in early school years. Games should be used whenever possible, since analysis of many of the games common to today's kindergarten and primary rooms indicates they serve as vehicles for learning identifiable skills. Exploration, experimentation, and manipulation of materials by the child also are of prime importance.

In summary, the role of the kindergarten teacher must assume a new look--that of educational diagnostician and prescriber. She must know what she wants to occur, why she is using certain equipment or material, and where specific skills fit into a sequence or framework of skills. Her ability to sense the optimal moment for learning, as well as the moment for intervention in the learning process, will determine in part her level of success as a teacher.



### III. Staff Development

As with any new teaching strategy, the diagnostic-prescriptive approach has wide implications for both teacher training by colleges and staff development by school systems. Both have a role to fulfill before the classroom teacher can assume her own role of evaluator and educational prescriber.

For diagnostic-prescriptive teaching, teacher training must adopt a new structure and assume new proportions. Much of the content must be different. The prospective teacher must gain an understanding of psychology and learning theory, and internalize ideas about child growth and development which go beyond textbook theory. She must be conscious of differences in teaching and testing techniques. Her knowledge becomes the foundation for intuitive teaching. Training in equipment and materials--design and structure, functions, strengths, and limitations--must provide the basis upon which she can design a curriculum for individual needs.

The school system's responsibility in this approach toward individualizing instruction is that of identifying a framework of teaching skills. This is not to say that skills are to assume priority. Attitudes, understandings, and factual information related to the effective and cognitive domains continue as major prerequisites, as well. However, the school system must:

- identify those skills deemed essential
- set up or specify tasks which can be used to determine skill levels or development
- give expectancy performance levels for the tasks
- identify some materials, activities, and games which can be used to develop the skill

The school system should further provide in-service which is focused on determined needs of the teachers and which is held at times when teachers can be receptive to new ideas and methods.

Teacher preparation in the 1968-69 research kindergarten classes had to cover an even greater range. The kindergarten program for Fairfax County was to be implemented and the teachers, therefore, had to have initial general in-service training. They also had to have specific training relating to the diagnostic-prescriptive program.

The proposed pattern of pre- and in-service which had evolved during the pilot kindergarten program in 1967-68, described in *The Kindergarten, 1967-68: An Evaluative Report*, served as the model for planning pre-school orientation in general kindergarten theory and practices for the teachers and instructional aides. No guidance was available, however, regarding in-service for a



diagnostic-prescriptive program nor was there any information regarding the expertise of early childhood teachers in evaluation techniques. In this instance, also, both teachers and aides were to be involved in the testing procedures. Orientation and training in these procedures, therefore, had to be considered and designed and the resultant in-service was geared toward providing the skills needed in giving tests and assigning tasks used in diagnostic evaluations.

Such training is insufficient, however, if the purpose is actually to implement a genuine diagnostic-prescriptive program and to individualize instruction. Attitudes, understandings, and factual information as well as skills must be imparted and further developed both prior to and during the adoption of new strategies of teaching and evaluation. Issues to be considered should include *time, personnel, content, and materials*.

#### Time

- how much time is needed to do what is required
- how often should meetings or workshops be held
- what hours of the day allow optimum receptiveness to new ideas and methods

#### Personnel

- what personnel should design the pattern of in-service and the content
- what role should the teachers have
- what kinds of specialists should lead the workshops (outside consultants or persons within the system)
- what school personnel should participate

#### Content

- what skills need to be developed
- what orientation needs to be given in utilization of equipment and materials

#### Material

- what is needed to undergird the prescriptive program
- what is needed in the diagnostic program
- what is the source of funding
- what are the possible priorities for purchasing

#### **IV. Instructional Materials**

A major reason for the ineffective use of kindergarten material is its constant availability to the children. This may be due to the lack of proper storage facilities or just the tendency of many teachers to have most of the room's equipment and material out in the classroom at all times.

Questions relating to use include the following: Is there a pattern of utilization of standard equipment to provide guidance to a teacher in storing equipment and materials? How often is material phased in and out of a classroom? Is there a sequence to the phasing? Is the use of material related to the types of children in the classroom? Is there a difference in use of material according to the sex of the child? What is the relationship between the material and the purposes of the curriculum? Is there a relationship between the use of materials and the training and experience of the teacher? Is there a relationship between teacher observations (or test data) and the use of materials?

Because of the plethora of new equipment in early childhood education, evaluation is extremely important. Purchases should be made on the basis of identified need and the knowledge that specific equipment is selected for particular instructional purposes.

In evaluation of new equipment, a schema should be devised which centers around the purpose for which various materials might be used. These, in turn, serve to focus attention upon aspects of the material or equipment which are essential in developing the identified purpose. Any item may be placed in one or more of the purpose categories. In fact, it is expected that many items could serve over-lapping functions. Specific purposes include the following separate categories:

Expressive - to develop creative ability and to allow the imagination free rein

Instructional - to develop specific, identified skills

Diagnostic - to be used by the teacher as a tool in assessing level of skill development

##### Expressive

1. Does it stimulate children to do things for themselves?
2. Does it stimulate:
  - curiosity
  - interest
  - manipulation

- initiative
  - resourcefulness
  - problem solving
  - imagination
  - creativity
3. Are children able to design their own products? Is the material *open* (many products possible) or *restrictive* (limited products)?

### Instructional

1. Does the material develop:
  - muscular coordination
  - freedom of movement
  - manual skills
2. Can the item be used in developing academic skills or concepts such as:
  - math
  - language
  - science

### Diagnostic

1. Can the item be used by the teacher to assess skill development including:
  - manual skills
  - hand-eye coordination
  - figure-ground relationships
  - product orientation
  - attention span
  - task orientation
  - concepts in academic areas
  - muscular coordination
  - organizational ability

Guideline questions which could be asked in connection with these purposes include:

1. Is it durable? Will it withstand hard usage? Is it strong enough?
2. Is the construction simple enough for a child to comprehend?
3. Does it work as intended?
4. Is it safe?
5. For what age levels is the item most suitable?
6. Is the color pleasing? Is color an important aspect of its usage?
7. Does it promote growth toward:

- independence
- exploration
- group activity (cooperative play)
- social relationships

8. Is it versatile? Can it be used in several ways?

Some manufacturers provide, with materials, a teacher's manual or guide which should be evaluated by the teachers using these guidelines:

sequence of content  
clearness of directions  
activities (appropriateness, adequacy)  
provisions for individual differences  
general helpfulness

# PLANNING AND ORGANIZING EVALUATION

## I. Strategy Design

During the months of July and August, 1968, the CEEC staff reviewed the available research literature on similar or related projects, examined evaluative instruments, and conducted numerous, informal, brainstorming sessions with school and non-school personnel in Fairfax County and elsewhere. By the end of August, the objectives for the child study and kindergarten programs were formulated, the research design developed, and the evaluation strategy outlined for the 1968-69 school year.

General procedures for measurement and evaluation of the children, programs, and other components of the project included:

1. base line data derived from parent and pupil inventories, rating scales, and school cumulative records which provide measures of home-school background, medical history, growth and development in various areas, social and emotional development, and related areas
2. pre-test measures of specific readiness, academic skills and knowledge, visual perception, motor control, general intellectual maturity, and related areas, including a neurological test on a selected sample of children
3. on-going systematic classroom observation of classroom organization and management of the learning environment, teacher-pupil interaction, pupil behavior rating scale, curricular development, staff development, and related areas
4. measures of auditory discrimination and articulation
5. post-test measures of readiness, academic skills and knowledge, visual perception, motor control, general intellectual maturity, and related areas
6. end-of-the-year measures to assess the factors effecting the total child study and kindergarten programs (questionnaires, rating scales and other similar instruments constructed by the CEEC staff).

In August, the CEEC staff identified and ordered an extensive battery of tests which were to be administered on a pre- and post-test basis to children in the research and control schools. The test battery included the following:

1. *Draw-A-Man Test*, which provides an index of perception, motor control, and general intellectual maturity
2. An *Interview*, which reveals the child's general knowledge of age, birthday, brothers and sisters, etc., and his ability to repeat sentences, to repeat digits forward and digits reversed, and



vocabulary

3. *Gesell Copy Forms*, which provide information on perceptual development, visual-perceptual development, and integration of motor coordination and visual-perceptual development
4. *Wide Range Achievement Test*, which provides information on reading-recognizing and naming letters and pronouncing words; spelling-copying marks resembling letters, writing their names, and writing single, dictated words; and arithmetic-counting, reading number symbols, and solving oral problems
5. *Metropolitan Readiness Test*, which provides information on the development of various skills and abilities which contribute to readiness for instruction and which includes subtests on word meaning, listening, matching, alphabet, numbers, and copying
6. *Frostig Developmental Test of Visual Perception*, which measures pupil's visual perceptual skills and includes tests on eye-motor coordination, figure ground, constancy of shape, position in space, and spatial relationships
7. *Lateral Dominance Test*, which provides information on the pupil's knowledge of right and left, hand preference, and eye dominance
8. *Neurological Evaluation*, which provides information on the pupil's ability to follow directions relating to laterality, crossing the midline of the body, motor skill tests, and sensory testing

The CEEC staff also began to explore the possibility of obtaining other base line data which would assist them in the diagnostic evaluation of initial strengths and weaknesses that children have when entering the kindergarten. The importance of this initial assessment of pupil skills and abilities cannot be overemphasized since the over-riding goal of these programs is to provide for the development of a child's fullest potential. The child, not instruction *per se*, is viewed as the program center. Accordingly, a framework must be established--an assessment of strengths and weaknesses--about the child. Such an assessment is the beginning step in developing individual-diagnostic, strategy-planning, evaluative data about each child. These initial base line data must come from a wide variety of sources--parents, teachers, aides, supervisor, and administrators. To obtain this information, the CEEC staff developed its own evaluative instruments. The following is a brief description of these locally constructed instruments.

The *Kindergarten Inventory* attempted to collect descriptive data on the pupils in the research classes. Information obtained included the pupil's name, sex, birthdate, age in years and months, number of previous years in nursery school, whom the pupil lived with, total number of children in the family, birth order of kindergarten child in family, mother's education and occupation, father's education and occupation, and health record of the pupil. The inventory's purpose was to obtain relevant information to assist teachers in determining in which area or areas and in what degree a pupil may need special attention and treatment.

The *Parent Inventory* was drawn up, beginning in early September, by the Evaluation Specialist in cooperation with coordinators of both programs. Its

purpose was to obtain general information on the child's development as perceived by the parent. Such information was to provide the staff with an additional input source of diagnostic information for evaluation and developing an instructional program for each child. The inventory was to include information on the background of the child and the family, medical history and physical development of the child, and further information, as seen by the parent, on the child's intellectual, social, and motor maturity and his school attitude.

By the end of September, a strategy design was formulated for pre- and post-testing of pupils in the Child Study-Kindergarten Program for the 1968-69 school year. The design provided the following:

- . a sequence for administering the test battery
- . a timetable for the testing
- . in-service meetings for teachers and aides who were to administer the tests in the experimental classes
- . specific manuals for each test and a manual on planning and administering tests for the teachers and aides
- . a plan by which CEEC staff members could develop local norms and interpretations of the test results
- . a plan to feed back the test information to teachers and aides in January

The testing strategy called for having the teachers and aides of the research classes administer the tests to pupils. This was decided upon so that immediate feedback could be had on the children's reaction to an instructional situation (ability to follow direction, concentration, attention, perseverance, mode of responding, and general learning style) and on whether they could be tested in the kindergarten classroom as opposed to a special room. It was anticipated that 15 days or more would be needed, with a maximum of 30 days to complete the tests. Thus, a time table which began on October 7 and concluded by the end of October (15 days) or the middle of November (30 days) could handle the pre-testing in all tests except the Frostig.

The sequence for administering the tests was to be as follows:

- |                                         |                 |
|-----------------------------------------|-----------------|
| 1. Draw-A-Man:                          | group test      |
| 2. Interview:                           | individual test |
| 3. Writing Name, Letters, and Numerals: | individual test |
| 4. Gesell Copy Forms:                   | individual test |
| 5. Wide Range Achievement Test:         | individual test |
| 6. Metropolitan Readiness Test:         | group test      |
| 7. Frostig Developmental Test:          | group test      |

The Interview, Writing Name, Letters, and Numerals, Copy Forms, and Wide Range Achievement Test were to be administered in one session. The Metropolitan Readiness Test (Form A), given to a group, was to take three sessions, as follows: session 1, tests 1 and 2; session 2, tests 3 and 4; and session 3, tests 5 and 6. The administration of the Frostig Developmental Test of Visual Perception would occur later in the school year (January) and/or depend upon indicators of need as revealed by the initial test results.

In October, the CEEC staff developed and prepared specific test manuals for each of the above tests and a manual for planning and administering standardized tests in order to: (1) further clarify and simplify the directions for administering the tests and (2) provide a test administration package that the teacher and aide could refer to without having to turn to separate test manuals in each case. In addition, the staff developed a video tape of a testing situation with a five-year-old child. In-service meetings on October 3 and 4 for the teachers and aides in the experimental classes, were designed to offer the following:

- an overview and discussion of the standardized and non-standardized test battery

- a discussion of each specific test and its sub-tests, the test manuals, and the guide to testing

- a viewing of a CEEC video tape demonstrating a testing situation, with a five-year-old child taking the tests

- participant discussion, replay, and stop-action of the video tape to reinforce pertinent points in the testing session

On October 15 and 16, CEEC conducted and video taped another in-service meeting for teachers and aides in the experimental classes, using Miss Gloria Follett of the Follett Corporation as consultant for orientation and training in administering the Frostig Developmental Test of Visual Perception.

Turning to another area of program evaluation, the program also required establishment of two control schools for the research design. The staffs of Bren Mar and Mount Vernon Woods elementary schools were asked to serve in this connection and agreed. To make the role as little onerous as possible, the CEEC staff decided that (1) CEEC would assume all responsibility for the testing and scoring in the control classes, and (2) all testing would take place in the classrooms. In this way, the CEEC staff would also gain actual classroom testing experience which would provide immediate feedback on the feasibility of the testing program developed. Through the cooperative work of the Child Study and Early Childhood Research Coordinators, the Evaluation Specialist, and two psychologists on loan from Psychological Services of the county school system, a program of action was mapped out to include:

1. gaining approval from the area administrators, the Assistant Superintendent for Instruction, and the principals and teachers, for establishing the control classes at Bren Mar and Mount Vernon Woods.

2. establishing testing dates at the two control schools through cooperative planning with the kindergarten teachers and principals.

3. developing a testing schedule covering a two-week time period for



five test administrators, a plan which allowed four days of testing and one day off for each of the five.

4. arranging for the on-site classroom testing, including physical arrangement of the classroom, order of children to be tested on individual and group tests, testing procedures, etc., with the kindergarten teachers. (It should be noted that all of the testing took place in the classroom during the actual instructional activities.)

5. testing approximately 50 children at each of the two schools during the time period of October 14-25.

6. scoring all the individual and group tests and establishing local standard scores, stanines, and percentile scores.

7. arranging and conducting the post-testing during the period of May 16-28 of approximately 50 children at each of the two schools.

8. arranging and conducting group testing in May with the Writing Name and Letters, Writing Numbers, and Gesell Copy Forms tests to determine the validity of a group testing battery for kindergarten children.

Another portion of the evaluation strategy was designed to provide a neurological evaluation for a sample of children in the project classes. This specific activity evolved out of the cooperative work that CEEC and the Special Learning Center of Children's Hospital, Washington, D.C., were engaged in during the 1967-68 school year. During this period, the CEEC staff and the project teachers assisted with the initial field testing of the School Entrance Evaluation (SEE) instrument, which had been designed to identify specific instructional conditions under which children succeed in the kindergarten. The CEEC staff also consulted with Dr. Mark Ozer, Associate Neurologist, and his staff on numerous occasions for reaction and discussion of this instrument. As a result of this interaction, CEEC in September of 1968 entered into an agreement to assist in the field testing of Dr. Ozer's neurological evaluation instrument. The purpose of using this instrument in the project was two-fold: to broaden the regular medical examination recommended for children entering Fairfax County Public Schools and to gain assistance for the CEEC staff and the project school staffs in educational planning for the children.

Our review of related literature strongly indicated that a large proportion of children, ranging from 10 to 20 per cent of the normal population, would need special help in the school setting. It further indicated that these children in the past had usually been enrolled in the regular school program. Obviously, they failed under these conditions and were eventually referred to individuals or agencies outside of the local school for special help. Ordinarily, the help was not sought, however, until several years had elapsed and their difficulty further compounded by the emotional problems which often resulted. It was CEEC's purpose to develop a diagnostic-prescriptive program within certain schools that would prevent potential learning problems and focus on evaluation of the corrective procedures for deficiencies that children might have before they entered kindergarten. Thus, Dr. Ozer's expression of interest in our project and in participating through a neurological evaluation represented a unique opportunity.

In this connection, a quote from Dr. Ozer seems appropriate: "The neurological evaluation must be related to the developmental norms and in a fashion



which relates to the modes of teaching to be used. Measures of present level of performance, however, are a relatively static measure of the child's ability to learn. They are a function of not only his physiologic substate but also of the previous more or less successful teaching techniques utilized by parents or teachers. A fairer estimate would then involve the child's actual ability to learn. This is essentially what the school is concerned with. The important additional parameter then would be the child's rate of learning various tasks involving the different channels of learning. The measures utilized in this instrument are an adaptation of the traditional neurologic examination. Whenever possible, these tasks have been adapted so that one measures the rate with which the child can learn the task."

The neurological evaluation instrument is designed to be given by a qualified pediatrician or neurologist. It is given to a child on an individual basis, in a private setting, and takes approximately 15 minutes. The format is designed so that instructions are short and specific and one can keep the attention of almost all children.

Planning for this neurological examination included:

- . initiating clearance of the examination through area administrators and the Assistant Superintendent of Instruction, Fairfax County Public Schools (September)
- . developing a letter for parents that would explain the purpose of the examination and seek their permission for the child to participate in the project (September)
- . receiving approval of the letter from Fairfax County school personnel and Dr. Mark Ozer of Children's Hospital (September)
- . selecting four schools (Marshall Road, Mt. Eagle, Stratford Landing, and Westgate) which are representative of Fairfax County (September)
- . contacting individual schools to discuss medical examinations and to receive clearance on the project, as well as delivering parent permission forms to schools (September)
- . obtaining class lists of pupils involved in the examination and their birth dates for Dr. Ozer and his staff and local pediatricians in Fairfax County
- . answering various questions of parents regarding the examination (November)
- . developing dates for the testing of children at each of the four schools and arranging for space at the schools (November)
- . testing at each of the schools to be completed by Dr. Ozer and staff on November 27, 1969
- . contacting Dr. Ozer to arrange for data collection in manner appropriate for CEEC statistical analysis (December)
- . obtaining data from Dr. Ozer on March 28, 1969

developing local norms for Fairfax County children (April)

The original evaluation strategy also included the use of an auditory discrimination test and an articulation test. In September, the Assistant Supervisor of Special Education agreed that the services of some of the speech therapists would be available for administering these tests to the children in the research and control classes. Since the research results of last year's kindergarten program raised some questions about the validity of the Wepman Auditory Discrimination test, it was cooperatively decided that other auditory discrimination tests should be considered for possible use. The testing program in this area included the possible use of Templin-Darley Auditory Discrimination test, the Wepman Auditory Discrimination, and the Templin-Darley tests of Articulation. (The *Wepman Auditory Discrimination Test* is a test designed to measure the pupil's ability to recognize the fine differences that exist between the phonemes used in English speech. It should be noted that no visual ability is necessary on the part of the pupil, only the ability to hear accurately. The *Templin-Darley Tests of Articulation* is a screening test of 50 items which have been found to discriminate best between good and poor articulation of preschool and kindergarten pupils. The pupil's performance on the test can be used to determine whether the pupil needs more complete study of his speech-sound articulation and to allow for peer comparisons.)

In addition, because of concern with language development in kindergarten children, CEEC indicated an interest in the experimental use of the Utah Test of Language Development and the Templin-Darley Auditory Discrimination test in their research classes. It was agreed that if CEEC, after review, found these tests useful for diagnostic purposes, tests were to be supplied to the speech therapists for review and consideration.

The plan of action that was developed subsequently called for the speech therapists to be responsible for the organization and administration of the testing program at each of the 10 schools. Supporting help was to be provided by volunteer parents and upper grade elementary pupils.

CEEC was charged with the responsibility of providing the following information to the Special Education office: names of the schools involved, the principals, teachers, and children. The evaluation specialist assumed responsibility for obtaining this information and contacting each school principal and teacher to inform them of this phase of the testing program. A memo of September 20 confirmed the previous personal contacts made by the evaluation specialist regarding the testing program. It was indicated in this memo that since the administration of these tests was an added responsibility for the speech therapists, the tests would be scheduled when the therapists were available. The CEEC staff was to be informed by the Special Education office and would contact the individual school to inform them, in turn, of the testing dates. All the information was submitted to the Special Education office by the end of September.

Two barriers to the original testing plan strategy emerged at this time: (1) the role of the Special Education office was evolving, following appointment of a new director, and (2) decentralization of the county school system had resulted in speech therapists being assigned to an administrative area instead of the central office, as in the past. These factors, along with the high priority given to the objectives of the program for speech therapy, resulted in pushing back plans for testing auditory discrimination and articulation. As a result, a period of almost two months elapsed before any further plans were discussed.

On November 26, a follow-up discussion was held with the Special Education staff and it was decided that the testing program would be initiated in December. Later, several other informal conversations were held with the Special Education office in an attempt to initiate this aspect of the evaluation strategy. In January, CEEC was informed that due to the workload of the speech therapists it was impossible to initiate the testing program at that point. It was not until June that the schedule of the speech therapists allowed for the screening of any of the children and then only two schools could be involved in the testing.

In summary, the CEEC staff during the year completed the following tasks relating to evaluation:

1. arranged for the collection of the tests at the ten schools
2. devised a method of scoring each of the tests administered to the approximately 500 kindergarten children
3. trained three part-time employees and four CEEC secretaries to score and record the majority of the test data, as well as other descriptive baseline information on children in the program
4. provided orientation for three psychologists in scoring specific tests needing expert judgment
5. analyzed and interpreted test data to develop local Fairfax County norms and established local standard scores, stanines, and percentile scores for each test so that all tests could be compared with one another
6. initiated the development of schema for an individual profile of all test scores for each of the 500 kindergarten children in the 10 schools
7. initiated the beginning of a series of sequential, corrective learning tasks for individual pupils
8. designed various instruments for obtaining information relating to descriptive data of pupils, parents' perceptions of their children's development, usage of equipment and materials, observations of teacher-pupil interaction, usage of video tapes, school-community relations, pupil-behavior rating scales, and a rating scale of the children's performances in the kindergarten program
9. analyzed and interpreted data obtained from the above evaluative instruments
10. contacted and arranged for individual meetings with teachers, aides, and principals regarding test data derived from tests and instruments
11. arranged for a psychologist on loan from Psychological Services to individually test selected children with the Wechsler Preschool and Primary Scale of Intelligence (WPPSI), the Stanford Binet Form L-M, and, in March and April, the Frostig test
12. arranged for post-testing of children at the 10 schools and

collected the test data in May

13. arranged for the testing of four research schools with a group testing battery in June
14. conducted an in-service meeting in May for teachers and principals to discuss the interpretation of the test information, pupils' individual profiles, and the prescriptive instructional program
15. provided each school with class record sheets of all test data and forms for constructing an individual test profile on each child
16. arranged for data to be key punched for computer analysis and data bank storage



## II. Classroom Observation

The Child Study-Kindergarten program was originally designed to include "process monitoring" as one procedure for evaluating the total program. As defined by CEEC, process monitoring is a procedure for identifying what occurs in an instructional program while the program is in operation, in this way keeping a record of specific events and activities during a given period.

Such observation should focus on what is actually transpiring rather than on what ought to transpire, according to some ideal teacher-pupil interaction model. The need for a systematic plan of observation of teacher-pupil interaction in any classroom is obvious.

In this connection, Donald Medley and Harold Mitzel have provided a statement which bears repeating here:

"Any effect the teacher has on the pupils is mediated by some overt behavior on the teacher's part. Each behavior a teacher exhibits has a purpose (conscious or unconscious) and may be effective in achieving that purpose to a greater or lesser degree. The effectiveness of a teacher is defined as the average success of all his behaviors in achieving their intended efforts. It is realized that we cannot assess the competence of a particular teacher unless we know what effects he is seeking to achieve. We can, however, measure certain effects of his behavior and see which of his behaviors are followed by efforts in which we are interested. If this information were made known to the teacher, he could presumably modify his behavior and increase his competence."\*

As a result of expanding responsibilities, the CEEC staff had to develop a plan of process monitoring which would fit into changing roles of staff specialists and be accomplished in the time available. The appointment of a full-time educational technologist to the CEEC staff facilitated development of the process-monitoring procedures. By November, it was decided that the following observational techniques could be managed on a limited basis: (1) video taping of instructional activities, (2) analysis focused on teacher-child interaction where appropriate, and (3) observational scales that would supply information on a total kindergarten program.

Through cooperative effort a strategy design for audio-video taping was devised and an observational scale designed by early December. The schools to be included in a first testing of the strategy design were Hollin Meadows and

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\*Donald M. Medley and Harold E. Mitzel. "The Scientific Study of Teacher Behavior," Theory and Research in Teaching. Columbia University, New York, N. Y. 1963.

Edsall Park. The resultant information was to be the first step in determining whether the strategy methods would yield instructional information valuable to the kindergarten project. It was hypothesized that the information might be useful: to the kindergarten teachers involved and to the CEEC staff in analyzing the teaching-learning activities; and also to other kindergarten and primary teachers, principals, supervisors, administrators, psychologists, and parents in analyzing and interpreting the instructional programs in kindergarten generally. It was expected that this trial run of the video taping, photographing, and use of the observational instrument would be reviewed, analyzed, and revised by CEEC staff members and other school personnel who would serve as consultants to the project. It was realized that a careful, systematic plan for sharing the feedback information with the school personnel was necessary. In other words, use of the audio-video tape had to be carefully planned, with a definite viewing priority, or the technique could be extremely threatening to teachers.

The design for an observational scale called for the recording of five-minute observations which focused primarily on a specific activity and secondarily on a "freeze" of all activities. The five-minute observations were to be recorded every 15 minutes. Evaluation was devised as a two-part scale, which would include information on:

Part I - learning centers used during the observation; special instructional activities; kindergarten equipment; the kindergarten room; evaluative ratings on the classroom, furniture, equipment and supplies, storage space, lighting, heating, and ventilation; and, finally, a procedure for coding the room arrangement.

Part II - instructional activities during the work-play period, including the number of children in specific centers and a coding method to record the pattern of play; a coding method for the kindergarten teacher/aide functions and behavior during the work-play period; a coding method to record directed group instructional activities; specific facets of the teaching-learning process, including the material or equipment used, level of manipulation of the material, the teacher's directions and questions, and the teacher-child verbal interaction.

The video taping was not intended to picture a model instructional situation. Instead, by switching from activity to activity, not lingering on any activity for longer than ten minutes, it was intended to obtain a total view of the actual instructional program from the beginning to the end of one day.

Equipment for this procedure included two portable Sony video television cameras, one monitor, and two stationary microphones. Despite several less than satisfactory conditions--the camera had to be placed within learning centers because of lack of space, the microphones had to be moved from place to place to obtain sound, and the teacher was without a wireless microphone--video tapes were obtained which proved to be of considerable value. The video tapes offered two advantages: they afforded instant replay of a classroom scene and they allowed analysis of teaching practices and learning styles.

When the tapes are viewed in an acceptable frame of reference, based on procedures for developing self-evaluation and analysis of instruction, without threat, they make a useful contribution to the improvement of instruction. If the greatest advantage is to be realized, however, it must be understood that the tapes are not being used to evaluate the teacher.

Arrangements were subsequently made for a playback session of the video tape as feedback for the teacher. The objective of such a session is to aid the teacher--on the assumption that teaching changes as teachers have an opportunity to change their perceptions of instruction--in identifying and solving classroom problems.

Several other comments should be made concerning the use of video tapes for analysis of instruction in the program. With the guidance of the Educational Technologist, the Center selected and purchased two Sony video tape recorders, as noted, and two vidicom cameras with 4-1 lens zoom, one camera switcher, one audio mixer, one 18-inch monitor, two microphones, and one back-pack camera with recorder. This system uses half-inch tape for taping and playback capability.

Planning involved team effort by the Educational Technologist, the Coordinator of Early Childhood Research, and the Evaluation Specialist. Permission to field test the procedure had also to be obtained from the principals and kindergarten teachers of the two schools.

The first tape was viewed by the CEEC study team for an assessment of the methods and content selected for the camera and later viewed by the teacher involved. A third viewing was held for the CEEC Change Specialist and two psychologists from Psychological Services. A somewhat similar procedure was followed in the case of the second school.

A coding procedure was developed to record the taping sequences, instructional activities, including small and large group activities, approximate footage of each, an analysis for assembling sections of the tapes for in-service purposes, and various instructional activities as far as teacher, aide, and children were concerned. In addition, a survey instrument was prepared to obtain reactions of principals and teachers at both schools, the principal and teacher at Edsall Park viewing their tape on February 13 and the principal and teacher at Hollin Meadows on February 21. In another effort to assess the tape's usefulness, elementary supervisors from all areas were invited to view the tapes on March 27 and react to their value in pre- and in-service training.\*

The tapes were also run on March 4 at Hollin Meadows and May 27 at Edsall Park for parents of kindergarten children to get their reaction to the tapes as an information medium in the kindergarten program.

By observing via video tape a teacher can "see and understand" what she is doing and the way in which her actions affect her pupils. After a teacher has the opportunity to view herself, request assistance if needed, and decide whether specific parts of the tape should be retained or erased, other school personnel can be involved in an analysis of the tapes with the teacher.

Also explored as a part of process monitoring was the technique of obtaining photographic time samples\* which would yield information about the kindergarten program and its instructional activities, teacher-pupil behavior and interaction, utilization of instructional materials and equipment, and organiza-

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\*For further discussion on the video taping, see Objective 5.

\*Ibid.



tion and management procedures in the classroom. This activity was to be integrated with the use of the observational scale and video taping. In a field test at Hollin Meadows on December 12, a 35mm camera was mounted on a tripod to record periodically selected instructional activities. Twenty-four photographs were taken at fifteen-minute intervals and 12 at five-minute intervals, for a total of 36 photographs.

Further experimentation and field testing were to be conducted at Edsall Park school. After analyzing the information obtained from the first, however, it was concluded that photography as a method of process monitoring is not as effective as other methods, specifically the video taping. The latter offered all the advantages of still pictures and provided greater flexibility in its pictorial sweep of events. This decision plus an increased workload in other CEEC program areas and increasingly limited funds resulted in cancelling any further testing of the photographing technique.

To those who may wonder how a situation could be recorded either video taping or still camera and retain its natural qualities in view of the necessary equipment, it can be said that the operator's presence and the equipment's purpose were briefly explained to the children at the beginning of the day. Prompt answers to questions during the day seemed to satisfy them and few incidents related to the recording took place. At the end of the day, a playback of one group sequence, such as singing or rhythm, was presented to the class.

Another process-monitoring activity attempted to determine the degree to which findings of the 1967-68 pilot kindergarten program were being used in the county-wide kindergarten program.\* For this purpose a plan was drawn up for reviewing and analyzing the implementation of the kindergarten program in a selected sample of representative Fairfax County elementary schools. The specific purposes were: (1) to assess the impact of the pilot program on the system-wide program and (2) to obtain on-site assessments of a representative sample of kindergarten programs which would provide information for program review by the county.

The plan called for:

Selection of two teachers from the 1967-68 pilot kindergarten program, who were not involved in teaching in Fairfax County this year and were available for part-time work.

Observation by one of the teachers, in August and September, or an administrative area pre-service program to obtain information on the content and orientation provided for implementing the kindergarten program.

Periodic on-site observations at selected schools throughout the school year.

Selection of specific instructional variables to be observed during the pre- and in-service programs and during the regular school year.

In this connection, the CEEC coordinator of early childhood research

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\*See Objective 1.



was to offer observation and consultation to area and central office instructional staffs to assist them with implementation of the kindergarten program.



## BARRIERS ENCOUNTERED

The CEEC staff has identified the following factors which acted as barriers in the kindergarten program during the 1968-69 school year:

### Time factor

Time acted as a barrier because it could not accommodate the research design conceptualized by the systematic change procedure, whose guidelines for program planning and evaluation specify three basic phases: a need and feasibility phase for determining specific needs and assessing the feasibility of various possible program components; a planning and pilot phase to field test components; and an implementation phase after systematic evaluation and/or further study of the program and its components.

In the first place, in 1967-68 the kindergarten program was locked into a schedule which--because kindergarten was to be implemented on a county-wide basis in 1968-69--forced CEEC to telescope the first two phases. (The schools' instructional staff had already been involved in some aspects of planning.) Planning and supervising the pilot program, itself, uncovered a variety of areas which needed to be explored in depth, but available time was consumed by organizing and supervising day-to-day operation of the demonstration classrooms, evaluating the program, selecting and ordering equipment for the 1968-69 school year, and related areas. Compression of the three-phase cycle into two years of activity meant further that CEEC had to assume a dual role in the implementation phase, assisting the school system with the county-wide implementation of kindergarten and at the same time attempting to conduct research into specific areas of the program.

Second, time--or lack of it--acted as a barrier when it came to undertaking the considerably detailed work of developing specific dimensions of individual pupil profiles. In this work, the staff was involved in testing at the two control schools, developing scoring procedures for the battery of tests, scoring the battery of tests, developing local Fairfax County norms for each of the tests, and working with other personnel who were assisting in the testing program. Time involved in these detailed activities and in other aspects of the combined program pushed back completion of the diagnostic profiles and the prescriptive phase, thus, could not be begun in time for implementation this year.

Third, available time was fragmented by the pressure of work on other tasks assigned to or required by the CEEC staff.

### Personnel factor

The original projection for staff members in the planning, developing, and evaluation of the combined child study and kindergarten program called for six or more full-time people. Instead, personnel included only the full-time attention of the coordinators of child study and early childhood research and

the Evaluation Specialist, plus the occasional assistance of the Educational Technologist. Developing a meaningful diagnostic-prescriptive program is an enormous undertaking for such a small staff.

In addition, the urgent need to cooperatively identify relationships between and specific responsibilities of the CEEC staff and local instructional staffs in developing the kindergarten program was met on only a limited basis. Finally, as with time, available personnel was frequently further reduced and their attention fragmented by other tasks. Continued concentration of a specific research task apparently is considered a luxury, rather than a necessity, in proper planning, developing, and evaluating.

#### Financial factor

The Center was caught in the bind between state/federal budgeting curtailment, with resultant decreases in available funds for continuing programs. Lack of funds in the child study-kindergarten program had both direct and indirect effects. In the first, it eliminated plans to hire research assistants, it reduced the expected instructional equipment and material for the program, it aborted plans for using local school coordinators as "linkage agents" in planning, developing, and evaluating the program on a continuous basis, and it forced changes in the role of the Coordinator of Early Childhood Research. In the second, inability to obtain funding as set up in allocations originally projected meant considerable re-shaping and re-planning of the program.

#### Theory and Practice factors

Project teachers frequently failed to see the relationship between the battery of tests and the instructional program. This problem can be attributed to lack of previous training and experience along these lines. A pre-service program of the required nature was initiated but, due to barriers represented by lack of time, personnel, and finances, could not be continued in in-service, throughout the year. In addition, the considerable distance between the eight research schools, located throughout the county, and the CEEC offices made it extremely difficult even to visit the schools as often as program plans suggested. This situation created problems in providing teachers with feedback information and reinforcement and offered only limited contact between the CEEC staff and the research teachers for discussion about sound instructional strategies and evaluation practices. Finally, the lack of frequent contact meant that the CEEC staff was unable to convey the importance of completing specific diagnostic tasks, such as the testing, within a time limit which would allow analyses of prescriptive tasks for individual pupils.

#### Perception/Communication factors

Barriers erected by the combined factors of perception and communication took the following forms: Top decision-makers in the school system perceived CEEC as having enough personnel, time, and resources to undertake various major projects, *in addition* to projects for which the Center was committed under the terms of its grant. They, accordingly, assigned such projects to the Center.

Because of its eagerness to continue research and evaluation capabilities beyond the three-year life of the Center, CEEC on its part accepted certain of the above mentioned assignments at an obvious cost to previous commitments, of which this combined project was one.

More directly laid to poor communication, alone, was the lack of receptivity and commitment by decision-making personnel and consequently lack of integration of the work of CEEC with that of the local schools' instructional staff in kindergarten.

#### Acceptance factor

A final barrier--which also produced only limited adoption of research recommendations developed out of the 1967-68 pilot kindergarten program--stemmed from reluctant acceptance of either CEEC personnel or ideas in mapping out instructional strategies for kindergarten. As a result, the CEEC staff occasionally felt that it was an intruder and CEEC ideas were simply put in cold storage. This situation may possibly be attributed to the fact that the CEEC staff members held positions in the school system before joining the Center and attitudes regarding their appointment to the Center were apparently mixed.



## REVISED OBJECTIVES

The major purposes of the Child Study Program and the Kindergarten Program, respectively, were: (a) to implement a diagnostic-prescriptive program in the kindergarten, with prevention of learning problems as the major objective and (b) to continue development and refinement of the pilot kindergarten program and dissemination of findings therefrom to the county-wide kindergarten.

To meet these purposes, the decision was made to combine the two programs. Such a move would allow implementation of a more nearly comprehensive, realistic approach to research, planning, and development.

Objectives of the combined Child Study-Kindergarten program were then drawn up, as follows:

1. To provide continuing assistance to the Fairfax County Public Schools in the implementation of a county-wide kindergarten program for 8100 children through evaluation support, consultative support, program review, and dissemination of kindergarten research results.
2. To develop a relatively structured, evaluative procedure that can be followed by kindergarten teachers to assess strengths and weaknesses of individual pupils in cognitive, social, and sensory-motor areas.
3. To further delineate the characteristics of Fairfax County five-year-olds in various cognitive, social, and sensory-motor areas.
4. To initiate the development of an instructional program consisting of a series of sequential learning tasks focused on the needs of individual pupils.
5. To develop methods of providing feedback to teachers on teacher-child interactions and instructional strategies.
6. To evaluate selected instructional materials and equipment and their use in selected kindergarten classes.
7. To develop in-service approaches which, in being meaningful to teachers and aides, produce changed behavior in teaching.
8. To develop evaluative instruments which can be used by teachers in their assessments of and/or planning for pupils and programs.
9. To begin development of a plan for assessment of first grade progress in 1969-70 by children now in the Child Study-Kindergarten Program.
10. To disseminate the research findings of the 1968-69 Child Study-

Kindergarten Program to each elementary school, school personnel in the central and area offices, and other interested persons in and out of Fairfax County.

The research study was to include a total population of approximately 500 kindergarten children, 10 teachers and aides, and 10 principals of Edsall Park, Hollin Meadows, Lake Anne, Marshall Road, Herndon, Mount Eagle, Stratford Landing, Westgate, Bren Mar and Mt. Vernon Woods elementary schools. Kindergarten classes in the first eight were designated as research classes while classes in Bren Mar and Mr. Vernon Woods schools were designated as control classes. The control classes differed from the research classes in the following ways: (1) they did not participate in the pre- and in-service training programs conducted by the CEEC staff; (2) they did not receive consultation and supervision provided by the CEEC curriculum specialist, and (3) their teachers and aides did not conduct any testing of the children; instead, the CEEC staff and psychologists from Psychological Services completed testing of these children.

Each school originally had two classes of approximately 25 pupils per class. Two of the schools, Edsall Park and Hollin Meadows, had participated in the 1967-68 pilot kindergarten program and had teachers from that program.

The ten schools were selected on the following basis: (1) they were representative of Fairfax County schools as a whole, (2) the children were representative of kindergarten children in Fairfax County, and (3) the principals and teachers had volunteered their services and expressed a desire to participate in the program.

There follows more detailed discussion of activities and findings relating to each objective, respectively:

Objective 1: To provide continuing assistance to the Fairfax County Public Schools in the implementation of a county-wide kindergarten program through consultative support, evaluation support, program review, and dissemination of kindergarten research result:

1. The CEEC staff provided the following consultative and evaluation support:
  - A. Assistance to the Department of Instruction in consultative services by CEEC's Coordinator of Early Childhood Research, as well as by two teachers from the 1967-68 pilot kindergarten classes who also aided in development of a 241-page working guide to kindergarten curriculum for the county program.
  - B. Availability of the CEEC Coordinator of Early Childhood Research to central and area office staffs for cooperative planning of pre- and in-service programs, and, in addition, of other members of the CEEC staff for further analysis and interpretation of findings from the pilot classes. (Extensive use was made of the assistance of the Coordinator of Early Childhood Research but other CEEC staff members were not called upon.)
2. The following steps were taken to gather information regarding implementation of the county-wide program and to determine the degree to which recommendations developed out of the pilot program were followed:
  - A. A survey of implementation of the county-wide program was conducted and information obtained regarding the backgrounds of principals, teachers, and aides, observation in the CEEC program, kindergarten classrooms, supplies and equipment, the first week of school, and related factors. Results from the survey indicated that the kindergarten program generally had been implemented effectively and that CEEC had been instrumental in the process, but that various problem areas needed attention.\*
  - B. A plan developed for review and analysis of the kindergarten instructional program, county-wide, through a sample of representative elementary schools, originally included process monitoring of pre- or in-service programs at these schools. For the latter purpose, a former pilot teacher was employed by CEEC to attend pre-service programs in one administrative area on August 29 and September 4 and 5. Three instructional supervisors conducted the meetings and 50-60 teachers and aides participated. Content during the three sessions concerned:
    - . plan of action for kindergarten during the year
    - . equipment and supplies
    - . organization and management

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See Appendix A

- . general goals, philosophy, and curriculum guide
- . behavioral objectives
- . learning centers
- . role of the teacher and aide
- . slides of pilot kindergarten developed by CEEC
- . conferences for parents during the year
- . teaching strategies
- . presentation of AAAS Science program by supervisor of science
- . overview of characteristics of the five-year-old child
- . presentation on implementing the kindergarten program--strategy and rationale--by Dr. Helen Robison, Teacher's College, Columbia University
- . various written materials regarding program, e.g., a booklet on kindergarten prepared from a previous presentation by Dr. Kenneth Wann

As experienced by the teacher-observer, pre-service problems had to do with limited opportunities for teacher participation (both teachers and aides expressed some concern in this connection) as well as limited opportunities for interaction between teachers during the sessions.

Slide presentations were of varying effectiveness. Use of slides from the kindergarten pilot classes was enhanced through the commentary of the teacher-observer. Use of slides containing pages from the AAAS manual, in a science presentation, was ineffective because facilities at George Mason College, where the pre-service was held, were inadequate and the pages were difficult to see.

The teachers seemed to have some difficulty in understanding behavioral objectives. Also, further clarification of how program areas can be integrated was needed despite the fact that the curriculum guide did a commendable job in explaining each subject area.

The pre-service was so comprehensive and the amount of information crammed into the three-day program so overwhelming that participants appeared exhausted by the afternoon of the third day.

As voiced during the pre-service, incidentally, lack of supplies and materials for the kindergarten classes opening in September and also lack of storage space were subjects of real concern to the teachers. Conclusions regarding the pre-service programs were that they generally followed recommendations made in the CEEC publication, *Kindergarten 1967-68: An Evaluation Report*, pages 12-13. Teachers and aides agreed that the pre-service programs were helpful and useful. The area's instructional staff, however, experienced the process monitoring as a checking-up process rather than as a means for evaluative feedback. The plan for process monitoring by teacher-observers,



accordingly, was discontinued and the CEEC staff concluded that any further process monitoring would be conducted only by the Coordinator of Early Childhood Research, at the request of one of the four area and/or the central office instructional staffs, and only in the eight CEEC experimental classes. Inability to get evaluative feedback from the pre- and in-service programs meant elimination of the plan for assessing the impact of the pilot kindergarten program on the county-wide kindergarten program.

3. The research findings obtained from the seven pilot kindergarten classes in 1967-68 were disseminated as follows:
  - A. Copies of *Kindergarten 1967-68: An Evaluation Report*, were distributed to school personnel in the central and area offices and to each of the elementary schools. The 148-page report provided information on the pilot kindergarten program, including background, rationale, curriculum development, staff development, the instructional aide, visitation procedures for the demonstration classes, instructional materials, the kindergarten day, planning and organization, barriers encountered, methodology and data collection, evaluation of 11 specific objectives, and conclusions and recommendations derived from the study.
  - B. Copies of *The Change Process in Action: Kindergarten*, a 42-page, condensed version of the evaluation report, in the form of a monograph, were distributed to the same personnel and made available to all school personnel in Fairfax County.
  - C. Copies of a filmstrip, entitled "A Kindergarten Day," produced by CEEC and funded by the Department of Instruction, were distributed to each elementary school and the central and area offices.
4. The eight experimental classes not only used the research findings derived from the pilot kindergarten program but also provided further, in-depth program development and evaluation. The CEEC staff was available to interpret the planning and development of this program and to identify strengths and weaknesses to area and central office instructional staffs.

Objective 2: To develop a relatively structured, evaluative procedure that can be followed by kindergarten teachers to assess strengths and weaknesses of individual pupils in the areas of cognitive, social, and sensory-motor areas

In attempting to attain this objective, the Center relied heavily on commercial and locally-devised educational tests. The major purposes of the testing program were to: (1) identify strengths and weaknesses in selected cognitive, social, and sensory-motor areas and (2) to measure growth, development, or change in the same areas during the year.

While relying primarily on the use of educational tests, it was also decided that evaluative procedures would be refined or new procedures developed in the testing program through reliability and validity studies of the test data. In addition, other modes of assessment, including video tapes, observational scales, photographs, rating scales on behavior and child performance, parent and pupil inventories, and other instruments would be used. These latter methods of evaluation are discussed under objectives in this report.

A battery of tests selected for the program included:

- |                                                                              |                                                                                                     |
|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| 1. Draw-A-Man                                                                | Goodenough Scoring, commercial, group                                                               |
| 2. Interview                                                                 | locally devised, individual test                                                                    |
| 3. Writing name, letters and numbers                                         | locally devised, individual test                                                                    |
| 4. Gesell Copy Forms                                                         | locally devised scoring technique, group                                                            |
| 5. Wide Range Achievement Test                                               | commercial, individual test                                                                         |
| 6. Metropolitan Readiness Test                                               | commercial, group test                                                                              |
| 7. Frostig Developmental Test of Visual Perception                           | commercial, individual test                                                                         |
| 8. Wepman Auditory Discrimination Test or other auditory discrimination test | commercial, individual test                                                                         |
| 9. Templin-Darley Tests of Articulation                                      | commercial, individual test                                                                         |
| 10. Lateral Dominance Test                                                   | commercial, individual test                                                                         |
| 11. Neurological evaluation test                                             | locally devised, individual test developed by Dr. Mark Ozer, Children's Hospital, Washington, D. C. |

Tests 1 through 6 were designed to assess: language skills, visual discrimination skills, visual discrimination with verbal association, visual discrimination with motor expression, motor expression of spatial memories, and

quantitative skills.

Other tests yielded information as follows:

Frostig -

eye-motor coordination	position in space
figure ground	spatial relationships
constancy of shape	

Wepman and Templin-Darley -

measures of auditory discrimination and articulation

Lateral Dominance -

information on handedness and laterality, as would the Gesell Copy Forms

Neurological Evaluation -

general information on subject, i.e., name, sex, birthdate, age, date tested, examiner, handedness

ability to follow directions (show me your left hand; point to my left ear); and to cross the midline (cross your left leg over your right knee)

assessment of child's coordination (stand on right foot for five seconds; walk straight line, eyes open; touch nose three times with left hand, etc.)

sensory reactions from testing, consisting of seven items:

optokinetic nystagmus	two point discrimination
face-hand test	visual figure ground
sound-touch test	tactile figure writing
position test	

Evaluation plans called for converting the raw scores from each of the tests into standard scores, stanine scores, and percentiles of standard scores, based on Fairfax County norms. These steps were to be taken to develop a more reasonable scale of measurement that would provide relevant information on individual differences and to develop comparable scales for different tests, particularly for use with individual profiles.

Objective 3: To further delineate the characteristics of Fairfax County five-year-olds in various cognitive, social, and sensory-motor areas

#### A. THE KINDERGARTEN INVENTORY

The Kindergarten Inventory was used to gather information about the home-school background of children in the Child Study-Kindergarten Program. To complete the inventory, one research assistant and three CEEC staff members visited the 10 schools in October and examined forms--originally filled in by the child's parent or guardian when the child was enrolled--kept in each child's cumulative record folder.

The findings of the inventory indicated the following:

- . The total population of the 10 schools included 497 boys and girls.
- . Sex distribution of the kindergarten children in the program was proportionate, with 52.5% boys and 47.5% girls. Analysis of sex distribution in morning as compared with afternoon classes showed 50.6% boys and 49.4% girls in the PM classes. Distribution in individual schools ranged from a high of 79.6% boys in one AM school to a high of 61.5% of girls in an AM class at another school.
- . Class size ranged from a high of 34 in one school to a low of 22 at another school. The average class size of the 20 classes in the 10 schools was 24.8. Morning classes were slightly larger (25.7) than afternoon classes (24.0).
- . At the time of the October recording, age distribution of the children ranged from 5 years, 1 month to 6 years, 1 month. The largest percentage of children in the 20 classes was 5 years, 8 months old.
- . 72.2% of the children had had no previous school experience, 12.8% had had one year, 1.8% had had two or more years, and 1.8% had had from .5 to 1.5 years prior to kindergarten. 11.3% of the parents failed to answer this question.
- . Almost all of the children, 96.9%, were living with their mother and father.
- . The children's birth order indicated that 29.5% were second children; 25.1% were first born or the only child; 22.1% were third children; and 12.4% were fourth children in the family. Birth order ranged from 1st to 13th in the 497 families.
- . More than 54% of the fathers had educations beyond high school. Of these, 26.7% had a B.A. degree or beyond and 11.6% had an M.A. degree or beyond. 26.9% had completed high school.
- . More than 39% of the mothers had an education beyond high school. 15% had a B.A. degree or beyond and 1% had an M.A. degree. The largest percentage of mothers, 42.2% had completed high school.
- . Data on the fathers' occupations showed that 31.5% had professional



or executive positions, 15.9% were commissioned officers in the armed services, 14.4% were skilled workmen, 8.2% were technicians, and the remainder were managers or workers, business men, workmen or laborers, semi-skilled or enlisted men. More than 6% of the records did not list the fathers' occupations.

- . Information on the mothers' occupations showed that 82.2% were housewives (mothers working only part-time are considered housewives), 5.6% were semi-skilled workers, 4.4% were professionals or executives, and 2.6% were skilled workers.
- . Information on the children's health was either unavailable or non-existent in the schools' cumulative folders. It should be noted, however, that health and medical records are on file in health clinics in the schools and classroom teachers have access to this information.

Research efforts in connection with the Kindergarten Inventory, as experienced during the 1967-68 Pilot Kindergarten Program,\* as well as during the Child Study-Kindergarten Program of 1968-69, suggest the following recommendations:

1. Cumulative records for kindergarten children, as well as for all elementary school children, should be examined and *revised* in order to obtain pertinent and needed information.
2. Individual schools should be responsible for obtaining this information and for seeing that parents complete the entire record form, so that the information is available to teachers as base-line data and for future educational planning.

#### B. PARENT INVENTORY

The Kindergarten-Child Study Parent Inventory, designed to obtain information from parents regarding each child's development, had two major purposes: (1) to provide the kindergarten teacher and aide with information about the child's development, as perceived by the parent(s), which might assist them in developing an instructional program for the child; and (2) to provide the CEEC staff with information for formulating a developmental profile for each child which could be used with standardized and non-standardized test data in educational planning.

The Parent Inventory was used only in connection with the eight research classes and not with the two control classes. To collect the inventory information, parents at four schools (Edsall Park, Hollin Meadows, Lake Anne, and Marshall Road) completed the inventory forms during a school orientation session on the first day of school; parents at the other four schools (Herndon, Mt. Eagle, Stratford Landing, and Westgate) answered the forms, brought home and delivered back to school by the children, in the latter part of September.

Results of the inventory, as shown in a sample population of 336 boys

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\*See Kindergarten, 1967-68: An Evaluation Report

and girls selected from the eight classes, indicated the following:

- . Sex distribution of the children in the sample was proportionate, with 53.9% boys and 46.1% girls.
- . Age distribution, number of previous years in school, information on whom the child lived with, and birth order of children were very consistent with findings derived from the Kindergarten Inventory.
- . Health information given by parents indicated that the majority of pupils did not have a history of diabetes, epilepsy, hemophilia, rheumatic fever, tuberculosis, or meningitis. In fact, only 2 children were identified as having had rheumatic fever (.59% of total sample of children), 1 child as having diabetes, and 1 child as having had tuberculosis (.29% of total sample of children).
- . The majority of children in the sample population did not wear glasses (98.2%) and were identified as not having any apparent visual problems (94.9%).
- . By using normative data on the child's weight and height, the following was obtained -

Boys N=181

42 lbs. or more	68.2%
less than 42 lbs.	18.2%
don't know	7.2%
no response	6.4%

44 inches or more	55.8%
less than 44 inches	15.5%
don't know	11.0%
no response	17.7%

Girls N=155

39 lbs. or more	73.5%
less than 39 lbs.	16.1%
don't know	8.4%
no response	2.0%

43 inches or more	65.8%
less than 43 inches	11.0%
don't know	14.8%
no response	8.4%

- . 96.7% of the parents reported that their children *did not* have any hearing difficulties.
- . 86.6% of the parents indicated that their children's speech was easily understood by other people. It should be noted that 11.9% of the parents stated that their children's speech was *not easily understood* by other people and another 1.5% of the parents did not respond to this question.
- . 17.3% of the parents provided additional general background and health information, which they felt would be of value to kindergarten teachers, principals, school nurses, or other school personnel.
- . In connection with *manual dexterity*, according to parents -
  - (A) 98.5% of the children could button their coats
  - (B) 92.0% could zip their coats or sweaters
  - (C) 57.7% could tie their shoes, while 42.0% could not

- . In connection with *gross motor coordination*, according to parents -
  - (A) 94.6% of the children could alternate feet while walking down stairs
- . In connection with *fine motor coordination*, according to parents -
  - (A) 79.2% of the children scribbled while attempting to draw and color at home
  - (B) 87.8% of the children drew and colored pictures at home
  - (C) 94.9% of the children drew and colored in coloring books at home
  - (D) 76.5% of the children could identify their right hand from their left hand
- . According to parents, the following described the children's knowledge system -
  - (A) Colors - 97.0% of the children could name four or more colors and 94.9% could tell the color of grass, a stop sign, and a banana
  - (B) Counting - 98.5% of the children could count five or more objects and 94.6% could count to 10 or more
  - (C) Vocabulary - 99.7% of the children knew the meaning of simple words like mother, stop, ball, and apple
  - (D) Verbal Attention - 97.9% of the children could remember instructions and carry out simple tasks and 96.4% could pay attention to a short story and answer simple questions about it
  - (E) Spatial-Motor Encoding - 97.0% of the children could put together a simple puzzle of 3-6 pieces
  - (F) Spatial Perception - 89.6% of the children knew the difference between a square and a circle
  - (G) Size Concept - 98.8% of the children knew which was larger, a cat or a horse or a man or a boy
- . Parents revealed the following about their children's *school attitude* -
  - (A) 97.6% of the children looked at books, magazines, and newspapers at home
  - (B) 94.9% did not resist going to school
  - (C) 87.5% pretended to read at home
  - (D) 96.4% asked when they would go to school

. Parents reported the following about their children's *peer adjustment* -

(A) 72.9% of the children had younger playmates in their neighborhoods

(B) 83.9% had playmates of the same age in their neighborhoods

(C) 84.2% had older playmates in their neighborhoods

. Parents stated the following about their children's *independence* -

(A) 98.5% of the children could take care of their toilet needs independently

(B) 71.1% of the children could cross streets alone

(C) 96.7% of the children could comfortably play away from home for more than two hours

. Close to one-third (32.7%) of the parents provided additional information centering around the children's special talents and interests and their own special concerns to the kindergarten teachers.

#### Conclusions:

1. The information derived from the parents is non-discriminatory and heavily weighted on the "positive side," parents perceiving their children as advanced in motor maturity, intellectual maturity, social maturity, and attitudes toward school. Since teacher judgment on each of the inventory items was not obtained and comparison, therefore, was not possible, the reliability of the data could not be gauged. It should be noted that all teachers and aides had an opportunity to analyze and use this information in any way that would assist educational planning for each child. It was suggested also that the information could be used as the basis for the first teacher-parent conference.
2. Information from the Parent Inventory made its most important contribution in raising warning flags when negative responses were given. For example, almost 5% of the parents reported that their children resisted going to school. Such a response would indicate the need for careful planning by the teacher in working with these children.
3. Regardless of its nature, this information provides base line data which indicate how parents in Fairfax County feel about and perceive the development of their children before the children proceed through kindergarten. The information has tremendous implications for the Fairfax County kindergarten program in terms of type of program, content of program, expectancies--"if my child is at this stage when he enters, he should be at that stage when he completes kindergarten"--and related items. These facts suggest: (a) greater involvement and more interaction between parents and the school, and (b) further interpretation of child growth and development, as well as of the kindergarten program.



### C. KINDERGARTEN PROGRESS REPORT

The kindergarten Progress Report is an "end-of-year" assessment that presents to parents the teacher's estimate of individual children's progress in six major areas: (1) Development of Work Habits, (2) Social Development, (3) Physical Development, (4) Language Development, (5) Development of Expression in the Arts, and (6) Math and Science Development. Each of the six areas had an evaluative continuum of *most of the time*, *part of the time*, *seldom*, and *not at present*.

An analysis of the progress reports for the 1968-69 school year shows that the children were accomplishing specific skills most of the time by the end of the school year. (This finding duplicates the 1967-68 research finding, as reported in *Kindergarten 1967-68: An Evaluation Report*, pages 74-76.) The analysis indicates the following:

#### 1. Development of Work Habits

- . 71% of the children could work with a definite purpose (N=433)
- . 75% could complete tasks (N=433)
- . 75% could pick up materials and put them away in appropriate places (N=433)
- . 76% could follow directions (N=433)
- . 84% could use materials and tools purposefully and correctly (N=433)
- . 96% could handle books properly (N=433)
- . 92% could take care of needs and belongings (N=433)
- . 85% could do routine tasks well (N=433)
- . 80% could work without disturbing others (N=433)

#### 2. Social Development

- . 76% could work and play well with other children (N=433)
- . 77% could listen when other children spoke (N=433)
- . 89% could share with other children (N=433)
- . 92% could obey safety rules (N=433)
- . 93% practiced good health habits (N=433)
- . 83% respected the rights and property of other children (N=433)

#### 3. Physical Development

- . 78% had good motor control, especially of large muscles (N=433)

- . 79% gained in small muscle control, as evidenced in cutting, working with crayons, and handling objects (N=433)
- . 85% enjoyed such physical activities as running, jumping, climbing
- . 88% were able to relax (N=433)
- . 93% seemed to have sufficient energy for the demands of the school day (N=433)

#### 4. Language Development

- . 71% could take part in informal conversation (N=433)
- . 67% could express themselves well (N=433)
- . 97% could enjoy books and stories (N=433)
- . 57% could retell stories in proper sequence (N=433)
- . 55% could create stories about their own or other pictures (N=433)
- . 58% could hear likenesses and differences (N=433)
- . 70% could take part in dramatic play (N=433)

#### 5. Development of Expression in the Arts

- . 88% could participate in singing (N=433)
- . 92% could participate in rhythmic activities (N=433)
- . 95% could create with paint, crayons, clay, wood, blocks, paste, and scissors (N=433)

#### 6. Math and Science Development

- . 65% could use numbers in real-life situations (N=432)
- . 66% could observe differences and likenesses in size and quantity (N=432)
- . 81% could recognize and identify shapes
- . percentages, as follows, could count to the following levels of attainment
  - 6% of the children - 0-10
  - 10% of the children - 11-19
  - 20% of the children - 20-29
  - 14% of the children - 30-39 (N=291)

4% of the children - 40-49  
 1% of the children - 60-69  
 1% of the children - 70-79  
 1% of the children - 80-89  
 1% of the children - 90-99  
 35% of the children - 100+

- . 55% could understand right and left (N=422)
- . 52% could use proper scientific vocabulary (N=431)
- . 81% could recognize numerals 0-10 (N=426)
- . 56% are developing scientific skills by using space-time relationships, using numbers and classifying (N=432)

#### D. BATTERY OF COMMERCIAL AND LOCALLY-DEvised TESTS

Standard scores, stanine scores, and percentiles of standard scores were developed from the following pupil population:

- |                                |       |
|--------------------------------|-------|
| 1. Draw-A-Man                  | N=468 |
| 2. Interview                   | N=461 |
| 3. Gesell Copy Forms           | N=457 |
| 4. Wide Range Achievement Test | N=457 |
| 5. Metropolitan Readiness Test | N=437 |
| 6. Neurological Evaluation     | N=167 |

All data derived from the above tests and the other commercial and locally devised tests will be reported in a forthcoming evaluative report by Dr. Richard J. Schillo, Child Study Coordinator.

Objective 4: To initiate the development of instructional programs consisting of a series of sequential learning tasks focused on the needs of individual pupils.

Tasks related to this objective were: identification of skill areas; analysis of component parts; development of possible sequences; identification of games, activities or teaching strategies; and specification of equipment or material needed in teaching for skill development. Because of the necessity to provide a framework of continuous assessment, certain tasks which might be used diagnostically were identified.

The outline for the diagnostic-prescriptive approach given below was developed by the Coordinators of Kindergarten and Child Study and the Evaluation Specialist and should be revised and enlarged upon by the Department of Curriculum and Instruction.

The outline covers the following areas:

Language (pre-reading skills)

- visual perception and discrimination
- visual memory
- alphabet skills
- reading

Quantitative

- number recognition
- counting
- time
- fractions
- verbal problems
- relationships (more than, less than, etc.)

Sensory-Motor

- copying forms
- writing name
- writing numerals
- writing letters

Cognitive (concept development-language development)

- labeling and describing
- making descriptive statements
- problem solving
- classifying and categorizing

With selection of development of cognitive skills as the first area for attention, work on the manual began in late January. As it is presently written, there are three parts to the manual:

- a short definition of a cognitive skill and an explanation of its importance



- a diagnosis of tasks used in assessing cognitive skill and performance expectancies
- a description of a skill development, with some materials, activities, and games identified

This work is only an initial attack on an enormous task. So far, teachers have not been involved in the writing. It is suggested that the total framework of the manual be reviewed and revised if necessary, and the manual written before teachers do become involved. The material can then be checked for validation in the classroom and the manual revised where necessary.<sup>1</sup>

Further work on the development of skills was incorporated into a paper on *patterning*. This paper was written by the Coordinator of Kindergarten following classroom observation and a resultant identification of need for help in sequencing activities related to pegboards, beads, and cubical blocks. The paper was sent to the Department of Curriculum and Instruction and to each of the instructional departments in the administrative areas; it was also duplicated and distributed to all kindergarten teachers.<sup>2</sup>

One of the original objectives of the Study Committee for the Fairfax County Kindergarten, 1966-67, was to develop a broad outline of learnings in mathematics, social sciences, and language. These subject areas were also identified by the CEEC Kindergarten Coordinator, in consultation with supervisors of the three subjects, for more intensive examination and development in the research classes. At that time, it was assumed that the coordinator would have a research assistant to free her from tasks above the clerical level but within the scope of an assistant and thus allow her to spend at least three days a week in classrooms with curriculum development as a major goal.

Due to reduction of funds, a research assistant was not available. This fact, plus involvement in consultative services in implementation of the county-wide program, suggested a redefinition of the Kindergarten Coordinator's role.

After conferences with the Assistant Superintendent for Curriculum and Instruction, the Director of Curriculum K-6, and with the respective specialists, the role was reshaped in October, 1968.

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<sup>1</sup> See Appendix C

<sup>2</sup> See Appendix D

Objective 5: To develop methods of providing feedback on teacher-child interactions and instructional strategies

#### A. OBSERVATIONAL SCALES

In early December, two CEEC staff members completed work on an experimental version of an observational scale. This scale was used on December 10, 1968, in an attempt to analyze specific aspects of the kindergarten program at Hollin Meadows and to gather instructional information about the kindergarten program which would be useful to the CEEC staff and later to classroom teachers. This first trial run of the instrument should be reviewed, analyzed, and revised by members to develop a more precise instrument. Until then and until test-retest experimentation yields professional consensus on the scales, information from the trial run is to be available only to CEEC staff members. Teachers are to have an opportunity at a later time to discuss the information with staff members and to use it.

Some of the more important findings from the observational scales indicated that:

- . All the learning centers except the housekeeping, science, music, and work bench were being used.
- . During the work-play period in the kindergarten classroom, the majority of the children, as evidenced by time samples (five time samples every 15 minutes, 8:45-9:45), were involved in using manipulative materials, i.e., puzzles, pegboard, sandpaper, letters, tiles, legos, beads, etc., throughout the classroom. Both boys and girls were engaged in these activities, often in various learning centers, such as the listening and reading/library centers.
- . Blockbuilding ranked next as the most preferred activity. The block building center was used mostly by boys, some of whom remained in this center throughout the five time samples.
- . Two special activities were teacher-structured. One involved a language-art activity, in which children were requested to draw a picture to illustrate a story; the other consisted of writing letters on a blackboard, with letter recognition being reinforced by a reward of the appropriate "Alphabit" (a food material).
- . Use of the art center (painting) was limited because there were only two easels available for the children.
- . The scales yielded limited information on teacher/aide behavior and function in the learning centers during the work-play period. The scales did indicate that (a) the aide was actively involved, moving from one center to another, asking questions, and being available to pupils, and (b) the teacher worked in one-to-one or small group (four to five children) relationships in more structured situations during most of the work-play period.
- . During the directed group activities period, the teacher worked with small groups of from three to nine children, who were usually cooperative and actively involved. Some of the children, of course, were

attracted only as observers and, as such, were uninvolved. Directed activities included (a) learning STOP-GO through the use of KERP materials that involved letters, words, colors, and shapes; (b) a word-picture puzzle card game; (c) a Lotto game; and (d) a teacher-structured blockbuilding activity.

### Conclusions

Working independently of one another, both observers generally obtained the same information. They agreed that the most valuable portion of Part I of the instrument was the coding process for recording the learning centers and furniture in the kindergarten classroom and their physical arrangement.

Observation of the work-play and directed group activities and of various facets of the role of the teacher and aide in the teaching-learning process raised the following questions:

- (a) How should the teacher and aide determine the pattern and types of activities during the work-play period, involving as it does 50 percent of classroom time?
- (b) Since it is important that children build upon their developmental skills, as well as have a balance of self-selected activities, is there some structure to activities during the work-play period?
- (c) Do the teacher and aide know how much time specific children spend on activities during the work-play period? For example, that one boy might spend an entire work-play period working on puzzles while another boy wandered around the classroom and did not engage in any specific activity.
- (d) Do the teacher and aide have an instructional program planned for individual children or is the instructional program planned for the entire class?

There is a definite need for revising the format of the observational scale for greater ease in observing and recording information on the teaching-learning process. Instead of having to turn to various pages to record information, one page should be available for recording all information on any specific activity. There is also a need to include various facets of the teaching-learning process, as well as a procedure for recording the sequence of teacher/aide behavior and function during the teaching-learning process.

### B. VIDEO TAPING

A limited amount of video taping was filmed at Edsall Park and Hollin Meadows schools. To gauge its effectiveness, assessments were sought from teachers and principals, parents, and supervisors. The findings follow:

#### Teacher and Principal Assessment

- . Both teachers and principals felt that the audio-video tapes could be very useful in (a) revealing strengths and weaknesses of the teacher, which could be remedied following a joint teacher-principal critique, (b) showing the roles of the kindergarten teacher and aide, (c) exhibiting organization of the kindergarten room and the learning

centers, (d) displaying patterns of pupil behavior and initiating child study, (e) showing instructional activities in the classroom and providing actual classroom situations for discussion, (f) in-service activities with other teachers and orientation of kindergarten teachers and aides, (g) explaining the kindergarten program and thus providing articulation between kindergarten and first grade, and (h) meetings with parents and in pre-school conferences.

- . Principals and teachers felt other personnel, as follows, would benefit from viewing the video tapes:

Personnel	Principals	Teachers
Other kindergarten teachers	2	1
Other kindergarten aides	2	1
Other primary teachers	1	1
Other principals	1	1
Other supervisors	2	2
With parents	2	1
With curriculum specialists	2	2
With psychologists	1	2
With visiting teachers	1	1

- . Teachers and principals agreed that teachers should have the option of accepting or rejecting an opportunity to video tape a class. One teacher said, "A teacher who feels insecure about video taping would have difficulty in making a successful tape and would be resentful of the image that the video tape might reflect." Words like "insecure" and "uncomfortable" were most often used in stating reasons why the option was important.
- . Teachers and principals agreed that the teacher should have an opportunity to view the video tape first and then be allowed to determine which personnel should view the tape and by what procedure. It was also agreed that the teacher, assisted by other personnel with first-hand knowledge, should determine what is retained or deleted.
- . Teachers and principals felt that the future use of video tapes should be determined by other qualified school personnel (administrators, supervisors, psychologists, who have a broader perspective in the teaching-learning process), according to the purpose for which the tape is being made.
- . Teachers and principals felt the tapes were useful in observing--
  1. Pupil behavior - specifically, children in isolated activities, working together, having difficulty completing a task, not participating in specific activities, and confronting various problems; also, children's attention span, speech patterns, and ability to work with teacher and aide. (Two comments by teachers illustrate the value of video taping, as they see it: "There are many more types of pupil behaviors that can be noted at one time and each time the tape is reviewed new behavior is observed;" "It is impossible to know what every child is doing. The video tape allows me to review pupil behavior."



2. Teacher and aide behavior - specifically, identification of individual roles, strengths and weaknesses, use of the aide in the program and possible new functions, and relationship of the teacher and aide to children.
3. Instructional activities - specifically, responses to instructional activities, value and effectiveness of instruction in large and small groups, and ways in which the children can be helped more effectively.
4. Organization and management - specifically, the total organization of the classroom and the effectiveness of the organization and management.

- . The work-play period was regarded by all the respondents as the area that should have the most extensive taping.

Barriers to video taping cited by principals and teachers included the facts that there is not enough room in some classrooms to tape effectively (in fact, some comments pointed out that rooms are not large enough for kindergartens), specific learning centers must be removed from classrooms when video taping, the stationary microphone must be moved from area to area and in-depth verbal responses by children in specific instructional activities are difficult to tape.

Suggestions for future video taping included: taping instruction by new teachers so that they can view their teaching practices and make needed changes; focusing on specific types of pupil behavior; taping specific lessons for future in-service training; and taping for general self-evaluation by teachers in terms of pre-planning, presentation, rapport with children, etc.

#### Parent Assessment

As a contribution to their continuing home-school communication, the principal and teacher at Hollin Meadows school requested that the video tape of the school's kindergarten be shown to parents, giving them an unedited, realistic, and minute-by-minute account of the kindergarten class in action. A survey of reactions to this showing, on February 21, rated the video tape fourth among 10 possible means of informing parents, the three preferred means being individual teacher-parent conferences, classroom visits, and written information about the program, in that order.

The parents, however, indicated that they had received a great deal of new information (very much on a four-part scale) regarding such areas as learning centers; equipment and materials; instructional activities; individual small groups, and large group instruction; objectives; roles of the teacher and aide; and children's behavior. They rated video tapes as very effective (91.3%) as a means of informing them about the program and offered the following comments, among others:

"Enables the parent to see the natural, everyday behavior and progress and group reaction-interaction. Would be interesting to see the continual development as time goes on."

"I can imagine no other medium which could give a more realistic view of kindergarten life."

"It shows what actually occurs, which is what parents want to know. The goals, when explained at pre-school conference, seemed unattainable by methods described. I am most impressed to see that they are being reached."

"I think it's a good way of informing parents--especially if the teacher is present to interpret and answer questions. If this was done at regular intervals throughout the school year, I believe it would be a very effective way of informing parents."

"The tapes give an exact account of what your child is doing. Seeing for oneself is of much more value than reading or listening."

"It would be interesting to see a progression over a period of time--October, January, April. Could program be expanded to other elementary grades?"

"This could be used to study almost all situations which would arise during a routine day--especially when done a few months apart. Attention span, social responses, skills, all could be studied--new ideas gained, old ones evaluated. This would be especially valuable to parents *after* a conference with teacher."

"In a shortened form--excellent material for viewing at the spring orientation for parents of the next year's class."

"It might be interesting if the video tape focused on more specific incidents and activities."

"The video tape is very effective and fascinating to see the classroom (and child) as it really is. Gives you a picture of what the teacher wants and what you can do to help."

"Would like to see a taped session with a kindergarten teacher, showing just how they plan their varied activities and formulate overall goals."

"I have thoroughly enjoyed seeing my child at school for a day. Now I understand why she is bored at home at times. Such a wonderful busy day."

Asked to provide suggestions regarding the use of video tapes, the parents listed the following:

- . use the audio-video tapes over a period of time in the school year to show progress (cited most often by parents)
- . use more close-ups of specific activities
- . show to parents at pre-school conferences
- . use video tapes for teacher training
- . use video tapes more--kindergarten and other elementary grades
- . use video tapes for public relations--informing parents about kindergarten program

## Supervisor Assessment

The CEEC staff arranged a meeting, on March 27, for administrative assistants of the four school areas and their instructional supervisors to share and discuss the video taping of classes at Edsall Park and Hollin Meadows. It was pointed out that the tapes had not been designed to show a model instructional situation but instead to present a filmed account of a variety of instructional situations, teacher-aid behavior, pupil behavior, and related areas which, with tape editing, might be of value to supervisors. From the five hours of taping, two and one-half hours were selected as being of most value.

The CEEC staff had previously decided to condense the tapes to a master tape, which would provide a view of the instructional program and overall teaching-learning process, highlighting organization and management, selected instructional activities, and teacher-aid/pupil behavior as these factors actually were, rather than as they might be in some imagined, structured situation. It was hoped that any segments of the tapes, viewed as particularly useful by the supervisors--especially for their pre- and in-service programs the following year--could be included in the master tape before it was made available for duplication by the central and area offices.

To select any such segments, an evaluation form sought ratings of very usable, usable, or not usable for specific sections of each of the five tapes shown. The presentation was preceded by the explanation that the tapes' purpose was to provide a *total* picture of the kindergarten program, from the beginning to the end of the class, but not to focus on any one specific activity.

Seven of the nine supervisors present returned the evaluation forms. The two assistant area administrators who participated were not present for the entire viewing and, accordingly, did not respond to the form. Evaluation results from the seven supervisors showed that:

- . the majority of specific video tape segments were assessed as very usable or usable.
- . specific sections evaluated as very usable showed instructional activities which were particularly structured in nature and resulted in observable pupil outcomes, e.g., the teacher working with a small group on specific language skills and vocabulary and working with the total group on rhythmic activities which stressed specific skills.
- . those video tapes that deal with the work-play period and pupils' selections of tasks were seen as less valuable. These tapes were not narrated, so that specific activities were not highlighted nor were teacher-pupil or pupil-pupil interaction picked up.
- . the lack of narration and sound pick-up of interaction were major concerns.
- . the sections rated as not usable appeared to be areas depicting the greatest contrast between what might be considered a model situation and an actual, every day situation.
- . sections showing instructional activities held the greatest interest. The learning centers, organization and management procedures used in both instructional and non-instructional activities, role and



functions of the teacher and the aide, and specific pupil behavior and its handling were seen as of little value.

The master tape, then prepared under the direction of CEEC's Educational Technologist and titled "Educational Strategy in the Kindergarten" is a 50-minute sequence made from the five hours of video taping at Edsall Park and Hollin Meadows schools. It is organized in the following manner:

1. Part 1, The Day Begins - dealing with the beginning of a kindergarten day and the children's selection of instructional activities.
2. Part 2, Work-Play--Clean-up and Snack - portraying specific activities which occur in the self-selected, work-play period, direct teaching in small and large groups, and snack time.
3. Part 3, Chanting - revealing large group instruction in music and the use of chanting as one part of the music program.
4. Part 4, Developing Rhythm - showing a large group instructional activity and illustrating two techniques for developing rhythm.
5. Parts 5,6,7, Peer Interaction - dealing with specific pupil behavioral incidents occurring in the kindergarten classroom and revealing teacher intervention in these incidents.
6. Part 8, Child-Led Teaching Incident - revealing a pupil-led instructional activity involving recognition and identification of letters, with reinforcement of learning through food.

### C. PHOTOGRAPHY

Using photography as part of the process-monitoring procedure was also initiated at Hollin meadows school in December. This method was to be integrated with the use of the observational scale and video taping to obtain a system of information about the kindergarten program.

In photographing the kindergarten, the CEEC Educational Technologist, who was responsible for the organization and implementation of this method of observation, set a camera on a tripod in the classroom and "hand-moved" it at specific time intervals to obtain pictures of the pattern of events natural to the learning of five-year-olds. A total of 36 still pictures obtained from these observations yielded valuable information when correlated with the observational scales and video tapes.

Findings thus derived indicated that:

1. photographs can gather evidence relating to types of instructional activities occurring in the program, specific teacher-pupil and pupil-pupil behavior and interaction, use of instructional materials in the program, and methods of organization and management procedures.
2. the limited number of photographic time samples possible from a one-day filming is insufficient for obtaining any significant idea of the effectiveness of this method.



3. used as the only method of observation, photography appears undesirable, because-
  - a. the time sample is limited to a specific "freeze" of events or activities and the results do not show an entire situation--what has happened from beginning to end, how various events have been strung together, etc.
  - b. the time sample is fragmented and does not show the total picture of what is going on in the classroom.
  - c. the time sample takes each event out of its relevant context. The organization of the instructional program must be understood before a photograph is analyzed and interpreted, i.e., did this event occur in a work-play situation or a small group situation, etc.?
4. If video taping methods are not available, the use of photographs with other observational methods, such as scales and specimen descriptions, appears to be useful in obtaining information on the kindergarten program.

The CEEC Educational Technologist was also requested to provide a final evaluation of the use of video taping and still photography. His conclusions are that:

More effective audio coverage with video tape could be had if an audio mixer with channels for at least three microphones were available. The general noise level during the work-play period inhibits the recording of individual teacher-child and peer interaction, indicating that perhaps some type of directional microphone might be used. A wireless microphone for the teacher, if financially feasible, would improve such pickups without restricting mobility.

The still photographs were of great value in identifying individual pupils for purposes of correlating observed behavior with teacher and test evaluations. As an observational tool, the periodic photographs did not permit a detailed analysis of such factors as attention span, degree of involvement, or peer interaction. Coverage would have been facilitated and improved through the use of automatic timing equipment and a compatible camera, and by using a wide-angle lens. Even if these advantages were present, however, the still photographs do appear to be useful for examining specific class configurations, identified as significant from the video coverage, and also to illustrate findings.

Coming into classrooms unannounced and allowing the children, under supervision, to examine the strange equipment of video taping and photography until their curiosity is appeased appears to be a successful orientation procedure. It was noted in one class, where the children had been told beforehand that they were to be "televised," that more incidents of modified behavior and looking into and waving at the camera took place than in a class where no prior announcement was made. It was also noted that the children in the informed class were "dressed in their very best" and perhaps significant clues to their socio-economic status were lost.

Objective 6: To evaluate selected instructional materials and equipment and their use in selected kindergarten classes.

A part of the strategy for evaluating instructional materials and equipment in the kindergarten classes was to develop a rating scale on the sequence of use, i.e., (1) used throughout the school year, (2) used on a periodic basis and perhaps phased in, out, and back into the classroom during the year, and (3) used once or infrequently during the year. The rating scale had a classification schema that placed all equipment and materials in the following categories:

- . housekeeping center
- . blockbuilding center
- . manipulative center
- . listening center
- . workbench center
- . music center
- . science center
- . art center
- . mathematics center
- . social studies center
- . montessori materials
- . other miscellaneous materials

Two experienced kindergarten teachers, both of whom had taught in the 1967-68 pilot program, were selected to participate in this portion of the study.

Findings showed that:

1. most of the instructional equipment and materials was used throughout the school year. (This finding substantiates a similar finding from the 1967-68 research.)
2. most instructional equipment and materials was first used in the kindergarten classes during September and October, and it can be assumed that the two teachers perceived all equipment and materials as essential for operation of classes at the beginning and throughout the year rather than to be used in a planned, developmental way.
3. ratings on desirability of specific items of equipment or types of materials varied from one learning center to another. This variance appeared to be related to the teacher's perception of an item's purpose and application to academic (language, math, science) or non-academic (art, music) areas and of its use by specific types of pupils.
4. while most of the instructional equipment and materials were used throughout the year, the amount of use varied from item to item, some equipment and materials being used for a 36-week period and others for only a 17-week period.
5. equipment and materials which were used periodically during the year and phased in and out of the classroom program showed the greatest variance in teacher selection. The following examples illustrate these differences-

- a. in the use of "table play blocks" from the blockbuilding materials, Teacher A introduced the blocks in the third week of October, continued their use through the last week of December, re-introduced them in the first week of April, and continued their use through the end of May; the other teacher introduced the blocks in the first week of October and continued their use through the end of May.
  - b. in the use of the AAAS science unit in the science center, Teacher A introduced the unit in the second week of September and continued its use through the end of November, when at the request of the CEEC coordinator she switched to the Scott Foresman Science Program; Teacher B introduced the unit in the second week of September and continued its use through the end of May.
  - c. in the use of pegboards in the manipulative center, Teacher A introduced the boards in the second week of September and continued their use through the end of November, re-introduced them in the first week of March, and continued their use through the end of May.
6. Only a small part of the equipment and materials was used infrequently during the year. These included:
- a. a tape recorder, which was used only at intervals over a period of months
  - b. rhythm instruments, which were used only at specific times during the year
  - c. various kinds of finger paints which were introduced by colors in a sequential pattern, i.e., primary colors first and other colors later
  - d. colored chalk, used only at specific times
  - e. SVE social studies study prints, also used only at specific times
7. while varying from one learning center to another, teacher ratings of various items showed surprising agreement in most cases. A matrix table developed to show each rating for each line item clearly reveals a pattern of use of the instructional equipment and materials.
8. the evaluation instrument could not pinpoint sequences of difficulty in the use of instructional materials, specifically of puzzles, pegboards, beads, lotto games, and similar items.
9. the evaluation instrument did not determine specific reasons for phasing certain kinds of equipment and materials in and out of the instructional program.

In another aspect of the evaluation of materials and equipment, all the teachers in the CEEC program, during an in-service meeting on May 21, selected

instructional items, including:

1. Scott Foresman Talkstarters Kit
2. Scott Foresman Science Program
3. Kindergarten Evaluation of Learning Potential Program (KELP)
4. SRA Math Kit: Inquisitive Games
5. Montessori materials: Sound and Color Boxes
6. Houghton-Mifflin Math Guide
7. Developmental Learning Materials
8. Polaroid Camera
9. Ginn Language Kit

In addition, the teachers were requested to provide information on equipment and materials needed to improve the program and needed for differing pupils.

These evaluations were forwarded to the Department of Curriculum and Instruction. General findings indicated that:

- . teachers hesitated to recommend any material for purchase on a county wide basis. Instead, they made recommendations for specific types of children who might benefit from use of the material.
- . teachers were aware of the cost factor as one basis for determining the feasibility of purchase. In many cases, they offered suggestions for teacher-made materials which have the same instructional purpose.
- . teachers tended to like materials which were accompanied by explanation for development of a skill and a sequence of use.
- . materials needed in greater supply in the program and so identified by most teachers centered in language and math areas. Most teachers indicated a need for more materials in these areas for advanced students.

Other findings relating to material and equipment in kindergarten classes came from CEEC's 1969 Analysis of the Implementation of Kindergarten, which was undertaken at the request of administrators of the four areas and of the Department of Instruction. It should be noted at this point that CEEC's Kindergarten Supervisor, as a result of the 1967-68 pilot program and in cooperation with the Department of Instruction and the Division of Supply, had developed a master list of equipment and supplies for county-wide kindergarten which were to be acquired over a three-year period. Purchasing for 1968-69 generally followed recommendations on this list.

To return to the 1969 analysis of implementation, alluded to above, findings ranged across the spectrum of implementation, but those relating specifically to materials and equipment revealed that:



- . 39% of kindergarten teachers had adequate and suitable furniture available at their schools by September 9
- . 21% of kindergarten teachers had adequate and appropriate equipment available at their schools by September 9
- . 42% of kindergarten teachers had a reasonable amount and variety of supplies available at their schools by September 9
- . 36% of kindergarten teachers and 37% of principals felt that the kindergarten classrooms (furniture, equipment, and supplies) were ready for opening of school on September 9
- . 94.3% of the materials and equipment were viewed as essential
- . 4.4% of the materials and equipment were viewed as desirable
- . 1.3% of the materials and equipment were viewed as supplemental

(The three findings immediately above also support findings from the CEEC pilot program of 1967-68. In the latter instance, the majority of materials and equipment was seen as essential, some was seen as desirable to enriching, and a minority as of no value. In both cases, teachers seemed reluctant to assign a no value rating to materials.)

- . 96.8% of the materials and equipment were rated very good
- . 1.3% of the materials and equipment were rated satisfactory
- . 1.9% of the materials and equipment were rated as unsatisfactory

(The latter three findings show a far more positive evaluation of the quality of materials and equipment than did findings from the CEEC pilot project.)

In summary, the various studies highlight the following facts:

1. The assessment of the kindergarten materials and equipment represents a significant step by the Fairfax County Public Schools.
2. The teacher-principal ratings are extremely positive and indicate that materials and equipment, in their opinion, make an important contribution to the objectives of the program.
3. The findings derived from the various studies are generally comparable.
4. A further in-depth evaluation of the use of materials and equipment in the kindergarten classrooms is needed for greater instructional gain in the kindergarten program and more efficient acquisition and use of materials and supplies.

Evaluations of equipment and materials in kindergarten programs appear to be extremely rare. Fairfax County, however, can be counted among the comparatively few school systems which have undertaken any such system-wide study. The study was made during the 1968-69 school year through the cooperative efforts

of the Department of Instruction, the four administrative areas, the Media Center, and the Schools' Division of Supply. It involved assessments by teachers and principals of 32 selected schools, eight from each area, employed a survey instrument very similar to the CEEC Kindergarten Materials Rating Scale, and produced findings which bore out certain results of CEEC's 1967-68 pilot program.\*



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\*See Kindergarten 1967-68: An Evaluation Report. Center for Effecting Educational Change, Fairfax County Public Schools, Aug. 1968. Pg. 95-100.

Objective 7: To develop in-service approaches which, in being meaningful to teachers and aides, produce changed behavior in teaching.

In early July, 1968, the CEEC staff formulated objectives for the Child Study and Kindergarten projects and developed pre- and in-service programs for teachers and aides for the 1968-69 school year. On August 28 and 29, the first pre-service programs were held for teachers and, on September 4 and 5, additional pre-service meetings were conducted for both teachers and aides. Their major purpose was to provide background information on the pilot kindergarten program, research information from the evaluation report of that program, and orientation for the experimental Child Study-Kindergarten Program which was to come.

The CEEC staff initially devised a differential pattern of staff development for research teachers to assess the effectiveness of pre- and in-service activities conducted by CEEC and of area administrative staffs. According to this pattern:

1. Teachers and aides at Edsall Park, Hollin Meadows, Lake Anne, and Marshall Road were to participate in all the pre- and in-service programs conducted by CEEC. Through the cooperation of the Department of Instruction, the Coordinator of Early Childhood Research, who originally planned to spend the majority of her time in 1968-69 working in kindergarten at these schools, was to be responsible for supervision of these kindergarten classes.
2. Teachers and aides at Herndon, Mount Eagle, Stratford Landing, and Westgate were to participate in only those CEEC pre- and in-service activities relating to the diagnostic-corrective child study program but, in addition, would attend all local administrative area pre- and in-service activities for the year.

Pre-service programs arranged by CEEC were held on August 28 and 29 and again on September 4 and 5 for teachers of the first group. During this period, teachers and aides in the second group attended pre-service meetings held by central office and area administrative staffs.

The CEEC pre-service meetings focused on the following:

<u>Teachers</u>	<u>Aides</u>	<u>Combined</u>
. Background of the pilot kindergarten program, including review and discussion of the evaluation report	. Presentation by Dr. Helen Robison, Columbia University and small group discussion	. Classroom teaching team; how it functions
. Slides of the kindergarten program	. Philosophy of the kindergarten program--emphasis on changes for five-year-old children	. Learning centers; purposes, materials, organization, etc.
. Philosophy of the kindergarten program with emphasis on change in five-year-old children	. Slides of the kindergarten program	
	. The five-year-old child	

### Teachers

- . Utilization of kindergarten curriculum guide
- . Role of kindergarten classes in 1968-69
- . Philosophy, objectives, and role of child study diagnostic-corrective program in 1968-69
- . Teaching strategies for the kindergarten program: role of play, direct instruction, large and small group instruction
- . Elements to consider in developing the kindergarten curriculum: exploration, manipulation, novelty in sameness, low key situations, freedom from tension and fears, play, etc.
- . Play in the kindergarten program with slides on play
- . The first days of school: practical suggestions by two experienced, pilot kindergarten teachers
- . Presentation by Dr. Helen Robison, Columbia University, and small group discussion
- . Centers of learning in the kindergarten and overview of instructional equipment and materials
- . Organization of classroom during first days of school
- . Program planning for the kindergarten with emphasis on balance of activities, scheduling, snack break, etc.
- . Parent orientation

### Aides

- . Centers of learning in the kindergarten and review of instructional equipment and materials
- . Organization of the kindergarten with emphasis on balance of activities, scheduling, snack break, etc.
- . Instruction in audio-visual equipment

### Combined



(Plans for combined teacher and aide meetings on developmental levels in art, art materials and how to relate them to art activities, teaching approaches through rhythmic activities, and singing in kindergarten had to be omitted due to lack of time.)

A second group of staff development activities in in-service meetings was held in early October for teachers and aides in both the child study and the kindergarten programs. The purpose of these meetings was to provide orientation and training in administering the battery of standardized tests to pupils in the involved classes. For these meetings, the CEEC staff prepared two major items:

1. A video tape presentation of a simulated testing situation in which a kindergarten-age child participated. This video tape provided a "how-to-do-it" approach and used the combined talents of the Coordinator of Early Childhood Research, the Child Study Coordinator, the Evaluation Specialist, and the Coordinator of Educational Technology.
2. Test manuals for the Draw-A-Man Test, Interview, Writing Names and Numbers, Gesell Copy Forms, Wide Range Achievement Test, and the Metropolitan Readiness Test. In addition, the staff produced a manual on planning and administering standardized tests, which provided specific guidelines and "tips" for teachers and aides.

On October 3, 10 teachers participated in the in-service program; on October 4, an equal number of aides. During the meeting with the teachers, the CEEC staff followed this general sequence of activities: (1) overall orientation and discussion on administering the standardized and non-standardized test battery, (2) specific discussion of each of the tests, (3) video tape presentation of the testing simulation with the five-year-old child, and (4) replay of sections of video tape for pertinent points in the testing session and participant discussion.

Analysis of the first meeting\* suggested the following changed sequence of activities: (1) general orientation and discussion on administering the test battery, and (2) specific discussion of each test, integrated with the video tape presentation and increased opportunity for participant discussion. Used in the meeting with the aides, this procedure resulted in a more nearly comprehensive analysis of each test and was extremely successful in eliciting discussion.

Another two-day in-service program was held by CEEC for kindergarten and child study teachers to provide orientation and training in administering the Frostig Developmental Test of Visual Perception and utilizing the Frostig Developmental program. This program, held on October 15 and 16, was conducted by Gloria Follett, Educational Specialist, Follett Educational Corporation, who had studied and worked under the direction of Dr. Marianne Frostig. Activities focused on:

1. orientation on purpose and use of the Frostig Developmental Test of Visual Perception (DTVP)

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\*See Appendix B

2. demonstration of test with kindergarten child
3. scoring and discussion of child's test performance
4. assisting teachers, working in teams, with administering test to other kindergarten children, observing, and scoring the DVTP (teacher A administered test; teacher B observed and scored test; teachers reversed roles)
5. in-depth discussion of the Frostig Developmental Program and its implications for the instructional program with emphasis on visual perceptual and sensory motor skills which lead to the development of thought processes

The CEEC staff also invited various principals and supervisors from area administrative offices, administrators and subject specialists from the central office, psychologists, and other teachers to these meetings in an attempt to provide continuing consultative services to Fairfax County as a whole. A video tape of the two-day program, made by the CEEC Coordinator of Educational Technology, is now available for viewing by interested groups or individuals.

In-service plans for the year included: organizing the classroom, the kindergarten week, AAAS science program (math); block building (math, language, social learnings), language development, the workbench, purposes and uses of manipulative materials (math, social learnings, visual discrimination, hand-eye coordination), social studies (concepts and related activities), and creative arts. Because of lack of funds and the restructuring of the role of the Coordinator of Early Childhood Research, however, these plans could not be realized. Instead, teachers and aides of the research classes attended in-service conducted by the elementary supervisors of the respective areas.

Objective 8: To develop evaluative instruments which can be used by teachers in their assessment of and/or planning for pupils and programs.

The following is a listing and brief description of the evaluative instruments that have been developed by the CEEC staff during the 1967-69 time period:

1. *Interview* - obtains information on the individual child's general knowledge of his age, birthday, brothers and sisters, etc., on his ability to repeat sentences and also digits forward and reversed, and on his vocabulary.
2. *Writing Name and Numbers* - requires the child to write his name, write all the letters he can, and write as many numbers as he can from 1-20. It also obtains information on the hand used for writing.
3. *Lateral Dominance Test* - measures a pupil's knowledge of right and left, his hand preference, and eye dominance.
4. *Kindergarten Parent Inventory* - obtains general information from the parent regarding a child's development. The instrument yields information on the background of the child and the family, on the child's medical history and physical development, and on his intellectual maturity, motor maturity, social maturity, and school attitude.
5. *Behavior Rating Scale* - measures a pupil's social adjustment and task-oriented behavior as experienced by the teacher.
6. *Rating Scale of Child Performance* - allows the teacher to take an inventory of a pupil's vocabulary, gross muscular coordination, ability to comprehend, pronunciation and articulation, quality of attention to teacher, visual motor ability, verbal syntax, ability to categorize or classify, quantitative skills, directional sense, general rate of learning, and a prediction of how well an individual child will perform in *reading skills* and *number skills* compared with other children at the end of the first grade.
7. *Principal's Survey of the Implementation of the Kindergarten Program* - obtains information which includes principal's preparation for kindergarten, the kindergarten room, impact, first weeks of school, comments or suggestions and recommendations.
8. *Teacher's Survey of the Implementation of the Kindergarten Program* - obtains information which includes teacher's background, aide's background, observation in CEEC demonstration program, number of classes taught, kindergarten room, supplies and equipment, first week of school, comments or suggestions and recommendations.
9. *Kindergarten-Child Study Observational Scale* - designed for observing the kindergarten classroom, providing ratings on the classroom, and compiling information on the teaching-learning activities in the centers and teacher-aide/pupil interaction in various activities. (This instrument, still in the experimental stage, is currently

being revised.)

10. *Kindergarten Equipment Utilization Scale* - provides information on the sequence of use of equipment and materials in the kindergarten classes.
11. *Materials Rating Scales* - obtains information through two locally-constructed instruments, on how well the kindergarten materials are meeting the needs of the programs. Specific questions on available materials, and adequacy of materials, frequency of use, suitability of materials, and use in specific curriculum areas are questions raised by these scales.
12. *Kindergarten Teachers and Aides Data Sheet* - obtains information on teachers' and aides' educational backgrounds and previous experience in working with children.
13. *Survey of the Role of Teacher Aides in the Kindergarten Program* - obtains information from the seven kindergarten teachers and aides as to the utilization of the aides in the programs.
14. *Kindergarten Report Card* - yields information through a locally-constructed, end-of-year report card on the pupil's development of work habits, social development, physical development, language development, development of expression in the arts, and math and science development.
15. *Kindergarten Enrollment-Attendance* - provides information relative to the enrollment of A.M. and P.M. classes and attendance of these pupils.
16. *Surveys of the Perceptions of Principals and Teachers in the Kindergarten Programs* - obtains information about the kindergarten program, specifically about such items as objectives; how well objectives have been reached; attitude toward the program; relationship of planning supervisor, principal, and teacher; impact of program on curriculum areas; and related items.
17. *Survey of School-Community Relations in the Kindergarten Programs* - indicates through a locally-constructed survey how well school-community relations activities explained the pilot program.
18. *Inventory of Factors Affecting the Kindergarten Programs* - assesses through a locally-constructed inventory the relative importance of various factors responsible for facilitating or restraining the progress of the programs.
19. *Kindergarten Audio-visual Survey Form* - obtains information, through a locally-constructed form, regarding teachers' and aides' training and background in using AV equipment and the need for in-service training for operating and utilizing AV equipment.
20. *Survey of Teachers' and Aides' Perceptions of Pre-Service Programs Conducted by CEEC* - elicits teacher and aide assessments of the four days' pre-service provided by CEEC through a rating scale and questionnaire.



21. *Video Tape* - provides analysis of teacher-pupil interaction through observation by video tape of the instructional program.



Objective 9: To begin development of a plan for assessment of first grade progress, in 1969-70, by children now in the Child Study-Kindergarten Program.

The approximately 500 children in the program will be followed up in the first grade through appropriate achievement testing, with the Stanford Achievement Test, Metropolitan Achievement Test, or other identified achievement tests as needed. In meeting this objective, the CEEC staff will send a master list of all pupils who were involved in the program to the 10 research and control schools, requesting each school to indicate which children are in the first grade of the school concerned, which have moved to another school in Fairfax County, and which have moved out of Fairfax County. An achievement test will be administered to as many children in Fairfax County schools as possible, in April or May, 1970. Test results will be correlated with previous test data to determine the "predictive value" of the original evaluative test battery developed by CEEC and to provide an assessment of pupil progress in grade one.

Objective 10: To disseminate the research findings of the 1968-69 Child Study-Kindergarten program to each elementary school, school personnel in the central and area offices, and other interested persons in and out of Fairfax County.

To meet the objective, the following activities will be undertaken:

1. Copies of this report, *Child Study-Kindergarten, 1968-69: An Information Report*, will be distributed to school personnel in the central and area offices and to interested persons in the elementary schools in Fairfax County. Additional copies will be available to other interested persons in and out of Fairfax County.
2. Copies of the evaluation report developed by Dr. Richard J. Schillo, Coordinator of Child Study, will also be distributed to the same school personnel in Fairfax County and will be available to other interested persons.
3. News releases on the evaluation reports will appear in the CEEC publication, *Educational Strategy and Practice (ESP)*, and in the Fairfax Schools *Bulletin* and *For Your Information*, School-Community relation's publications.
4. The CEEC video tape, entitled "Educational Strategies In the Kindergarten," will be available to the local elementary schools, the central and area offices, and other interested persons and also loaned for duplication by the school system, where requested.
5. The Coordinator of Early Childhood Education, who returns to the local school system as an elementary supervisor in the fall of 1969, according to plan, will be on call to provide consultation support and program review.

# APPENDICES

## APPENDIX A

### SURVEY OF KINDERGARTEN IMPLEMENTATION, FAIRFAX COUNTY PUBLIC SCHOOLS

At the request of the Department of Curriculum and Instruction, the Center undertook responsibility for conducting a survey of the county-wide kindergarten program to determine the effectiveness of its implementation.

Two survey instruments were designed, one for principals and one for kindergarten teachers of all elementary schools. The instruments sought information on the backgrounds of the principals and teachers, respectively, as far as kindergarten is concerned, on observation in the CEEC pilot program, on kindergarten classrooms, supplies and equipment, the first week of school, and related information. Data from the surveys were analyzed and interpreted on a county-wide basis as well as by administrative areas.

#### Findings

An analysis of the surveys on a county-wide basis revealed the following:

- . 36 principals, or 32%, indicated that they had previous administrative experience with a kindergarten program
- . 59 principals, or 53%, stated that they had participated in a kindergarten workshop
- . 12 principals, or almost 11%, reported that they had taught a kindergarten class
- . 54 principals, or 49%, indicated that they had college classes in early childhood education which included specific content about kindergarten
- . 82 principals, or 74%, stated that they had observed in the CEEC demonstration classes during the 1967-68 school year
- . 141 teachers, or 79%, reported that they were certified for kindergarten and 82 principals, or 74%, reported that all their kindergarten teachers were so certified. This apparent difference in teacher and principal responses might be explained by the non-response to this question
- . 34 teachers, almost 92%, who stated they were not certified for the kindergarten indicated that they were working on their certification
- . 155 teachers, or 87%, revealed that they had taught previously, with an average teaching experience exceeding six years
- . 107 teachers, or 60%, had taught kindergarten previously
- . 21 teachers, or 11%, had their master's degrees
- . 173 teachers, or 97%, had taken college courses in early childhood education which included specific content about kindergarten
- . 115 teachers, or 64%, had participated in a kindergarten workshop



- . 166 teachers, or 93%, indicated that they began work with other teachers on August 27
- . 173 teachers, or 97%, indicated that their aides began work on September 3
- . 76 teachers, or 42%, reported that they had observed the CEEC demonstration classes during the 1967-68 school year
- . 48 teachers, or almost 27%, reported that their aides had observed the CEEC demonstration classes in 1967-68
- . 50 teachers, or 28%, stated that their aides had had two years of college; 38 teachers, or 21%, reported that their aides had had four years of college, with a BA degree; and 28 teachers, or 15% indicated that their aides had had three years of college
- . 133 teachers, or 74%, stated that they taught two kindergarten classes at one school
- . 31 principals, or 28%, and 55 teachers, or 30% indicated that their school rooms had been designed for kindergarten
- . 67 principals, or almost 61%, revealed that their school plant had an adequate number of primary rooms suitable for kindergarten and grades 1-3
- . 98 teachers, or 55%, and 53 principals, or 48%, reported that they had adequate storage (including shelves) in the classrooms
- . 56 teachers, or 31%, and 30 principals, or 27%, stated that they had adequate storage and other space outside of the classroom
- . 139 teachers, or 78%, and 90 principals, or 81%, indicated that they had an outside entrance adjacent to or in the classroom
- . the majority of teachers and principals, more than 99%, reported that they had a restroom in their kindergarten
- . 70 teachers, or 39%, indicated that they had adequate and suitable kindergarten furniture available at the school on September 9
- . 38 teachers, or 21%, stated that they had adequate and appropriate kindergarten equipment available at the school on September 9
- . 76 teachers, or 42%, reported that they had a reasonable amount and variety of kindergarten supplies available at the school on September 9
- . 65 teachers, or 36%, and 41 principals, or 37%, indicated that the kindergarten classrooms (furniture, equipment, and supplies) were ready for the opening of school on September 9
- . the majority of principals and teachers, more than 96%, indicated that the pupils were assigned to specific classes during the first week of school
- . 171 teachers, or 96%, and 103 principals, or 95%, stated that the snack period operated smoothly during the first week of school

- . 156 teachers, or 87%, and 94 principals, or 85%, reported that a specific plan for parent involvement was established before the first day of school
- . 29 principals, or 26%, indicated that use of the primary rooms for the kindergarten resulted in an overloading of the school
- . 27 principals, or 24%, reported that the use of the primary rooms for the kindergarten resulted in an overloading of the school, some classes being placed in temporary facilities
- . 96 principals, or 87%, stated that the implementation of the kindergarten program did not require an inordinate amount of administrative time

#### Summary of Principal Narrative Responses - County-wide Analysis

In rank order of importance, the following problems were listed by principals:

- a. overcrowding of the school in general and specifically of primary classrooms; enforced use of tempos and other buildings (most frequently cited)
- b. delayed delivery of equipment, materials, and supplies to the kindergarten classes
- c. too large kindergarten classes for an effective instructional program and a consequent need to reduce pupil-teacher ratio
- d. inadequate storage space, both in and out of the kindergarten classrooms
- e. transportation concerns - scheduling, safety of children, and insufficient parent volunteers
- f. inadequate playground area and equipment for kindergarten children
- g. need for additional part-time clerical assistance in working with kindergarten enrollment and records
- h. need for improved public relations regarding the kindergarten program

Positive comments regarding planning for the kindergarten included:

"planning helpful and very complete"

"kindergarten program well planned and organized--showed great deal of work on part of planning body and departments"

"preplanning excellent--guide is useful and impressive--in-service interesting and practical"

"kindergarten planning committee did thorough job"

#### Summary of Teacher Narrative Responses - County-wide Analysis

The following is a sample of survey questions and responses thereto by Fairfax County teachers and aides:

What help was gained from the pilot kindergarten program by those teachers who observed demonstration classes?

provided the teacher with specific information and orientation relating to philosophy and objectives of the kindergarten program, understanding of the curriculum, class organization and routines, organization of various centers, use of equipment and materials, teaching approaches, and planning for first week.

- . provided the teacher with an opportunity to observe and obtain information on her role and her working relationship with the aide.
- . provided the teacher with an opportunity to observe and obtain information on five-year-old children.

What help was gained from the pilot program by those aides who observed demonstration classes?

- . provided the aide with a general overview of the kindergarten program--philosophy, objectives, organization, program content, equipment and materials, facilities, etc.
- . provided the aide with an opportunity to observe and obtain information on her role and working relationship with the teacher.
- . provided the aide with an opportunity to observe and obtain information on five-year-old children.

The teachers offered additional comments regarding various aspects of the county-wide program. For example, they cited a shortage of equipment and materials for the kindergarten and also indicated that the equipment and materials which were assigned to the program were not available for school opening. Sample comments follow:

"county could have been prepared better; no equipment and supplies in classrooms but are in warehouses"

"not enough materials and equipment"

"reasonable amount and variety of kindergarten supplies not available"

"classes functioned smoothly by borrowing equipment from other teachers and from parents"

"did not receive any equipment until September 25; had only chairs and bookcases on first day"

"special effort made to supply kindergarten with furniture, equipment, and supplies from school supplies to supplement kindergarten material not arrived"

They cited specific needs for more of such equipment and supplies as manipulative materials, blocks, housekeeping materials, puzzles, filmstrips, records, books, pianos, toys (for boys in particular), color construction paper, paints, phonographs, carpets, coat racks, and crayons; and they indicated that some of the equipment and supplies available were not sturdy enough or had been deliv-

ered incomplete. Examples of such responses are:

"need more manipulative materials and unit-building blocks"

"materials for creative expression, filmstrips on science and social development, a piano, library books--especially regarding subject matter suggested in guide"

"need puzzles, paints, easels, and phonograph"

"fair amount of material but repetitive and some not sturdy enough for kindergarten"

They also indicated a need for storage space, inside and outside, noting the following:

"storage space is a major problem"

"need more storage space in room"

"need outdoor storage for outdoor activities"

"need storage room in and out of room"

An adjacent, well-equipped play area, suitable for kindergarten children was also described as a need in such comments as the following:

"need suitable playground equipment--concrete pipe sections, sandboxes, log sections, low-built jungle gyms"

"need separate outdoor play area and equipment for kindergarten--blocks, planks, ladders, slides, tunnels"

Concerns regarding bus transportation were frequently expressed as follows:

"bus schedules should be worked out before first day and adults should assist with PM sessions"

"parents should meet children at bus stops; aide rode bus for eight days to help"

"more communication on transportation policies"

Finally, class size was cited as an important concern, the teachers citing:

"thirty-one children in class--overcrowding"

"thirty-five children in each session too much"

"classes should be limited to 25 children"

"effectiveness of well planned program lessened by large classes; limit classes to 20-25"

Other teacher comments related to:



- . the aide as being an extremely valuable member of the instructional team
- . the possibility of meeting parents and children before school opens, perhaps, in the spring, as well as the possibility of having a coffee and orientation program for parents during the first or second week in September
- . the advantages of more orientation for principals and teachers, and more time for teachers and aides to prepare for the kindergarten program
- . the need for establishing policy in regard to teachers' absences (and of not requiring the aide to operate in a teacher's capacity) and also in regard to aides' absences
- . the need for re-examining snack time, i.e., the types of snacks provided, whether snacks should be available to all pupils, and by whom should it be prepared; also, the use of the difficult-to-handle triangle milk cartons, which often ends in spilling the milk

Positive comments regarding the kindergarten program included:

"beautifully planned and organized kindergarten workdays"

"Dr. Robison's in-service talks inspiring and useful and pre-school meetings helpful"

"impressed with high level of readiness by county to begin such huge venture --commend choice of equipment, materials, and nature and flexibility of kindergarten program"

"guide is outstanding, planning excellent, workshops extremely helpful, and Dr. Robison outstanding"

## APPENDIX B

### ASSESSMENT OF CEEC PRE-SERVICE

Findings from an assessment of the effectiveness of the various pre-service meetings planned by CEEC were as follows:

#### Teacher Pre-service Meeting, August 28 -

- . 83% of the teachers indicated the objectives of this initial pre-service meeting were sharp and clear.
- . 100% of the teachers stated that the overall content of the pre-service meeting was appropriate.
- . 83% of the teachers revealed that the presentation on the background of the pilot kindergarten program (1967-68) was excellent; 66% indicated that the presentation was well organized.
- . 100% of the teachers reported that the program slides on the pilot kindergarten program were excellent; 66% stated that the presentation was well organized.
- . 83% of the teachers revealed that the presentation on the philosophy of the kindergarten program was excellent and an equal percent reported that the presentation was well organized.
- . 50% of the teachers indicated that the presentation concerning the use of the kindergarten guide for interpreting the philosophy of the program was excellent; an equal percent indicated that the presentation was well organized.
- . 66% of the teachers revealed that the presentation on the role of the kindergarten classes was excellent; an equal percent stated the presentation was well organized.
- . 83% of the teachers stated that the presentation on the philosophy and objectives of the child study program was excellent and an equal percentage indicated that the presentation was well organized.
- . 50% of the teachers reported that they wanted additional information and follow-up on the child study program. A majority of teachers indicated the other areas did not need additional information or follow-up.
- . 83% of the teachers reported that the best method of presentation was accomplished by using the combined talents of CEEC personnel (Coordinator of Early Childhood Research, Child Study Coordinator, and Evaluation Specialist) in discussing the program. In addition, 66% of the teachers indicated that the printed hand-out materials were excellent.
- . 83% of the teachers reported that the overall administration and organization of the pre-service program was well planned, offered few problems, and was extremely satisfactory.
- . 50% of the respondents indicated that the room arrangement and facilities were extremely satisfactory.

- . 100% of the teachers stated that the opportunities for participant discussion and interaction during the meeting, at the coffee break, and during lunch were more than adequate.
- . 100% of the teachers stated that the information derived from the pre-service meeting will be very useful to them.
- . In listing types of beneficial in-service meetings, 50% of the teachers reported that they would like in-service on the administration and use of tests and on evaluation; the same number indicated that their aides would benefit from an in-service program on the five-year-old child.

As a result of this survey the CEEC staff:

1. developed plans for August 29 to discuss the child study diagnostic-corrective program in more depth with the teachers.
2. revised the room arrangement into a more informal setting to facilitate or promote discussions.
3. began to step up previously established plans to conduct a later in-service on the administration and use of tests and evaluation in general.

#### Teacher and Aide Pre-service Meetings, August 28 and 29, and September 4 and 5

- . 71% of the teachers reported that the overall objectives of their four-day program were sharp and clear. 42% of the aides reported that the overall objectives of their two-day program were sharp and clear.
- . 71% of the teachers and aides indicated that the overall content of the pre-service was appropriate.
- . 57% of the teachers said that the presentation on teaching strategies for the kindergarten program was excellent; 85% said that it was well organized.
- . 57% of the teacher respondents indicated that the presentation on important elements to consider in developing the kindergarten program was excellent. 71% of the teachers stated it was well organized.
- . 57% of the teachers reported that the presentation on play in the kindergarten program (including film slides) was excellent and well organized.
- . 60% of the teachers indicated that the presentation on the first days of school by two experienced pilot kindergarten teachers was excellent and well organized.
- . 40% of the teachers stated that the presentation by Dr. Helen Robison, consultant for the total Fairfax County pre-service program for kindergarten, and the small group discussion sessions were average, 50% of the aides reported these activities as good. More than 60% of the teachers indicated these activities were well organized.
- . 57% of the aides indicated that the presentation on the philosophy of the kindergarten program was excellent; 71% of the aides stated it was well

organized.

- . No concensus was reached by aides on presentation regarding the role of the kindergarten aide, 28% rating it as excellent, another 28% as good, and still another 28% as average. However, 42% of the aides indicated the presentation was well organized.
- . 50% of the aides reported the slides on the kindergarten program were excellent and 66% reported the presentation was well organized.
- . 50% of the aides stated the presentation on the five-year-old was excellent and well organized and another 50% stated the presentation was good and appeared organized.
- . All of the teachers reported that the presentation on the centers of learning in the kindergarten program was excellent and well organized; 71% of the aides indicated it was excellent and 85% stated it was well organized.
- . 42% of the teachers indicated that the presentation on the organization of the classroom during the first days of school was good. Aides were undecided about the quality, 28% reporting excellent and another 28% reporting average. 71% of both teachers and aides reported that the presentation was well organized.
- . 57% of the teachers stated the presentation on program planning for the kindergarten was excellent; 42% of the aides stated it was good. Both teachers and aides (more than 57%) reported it appeared organized to well organized.
- . The need for additional information and follow-up, as seen by teachers, was greatest for (1) role of the aide (85%), (2) characteristics of the five-year-old child (85%), and (3) organization of the classroom during the first days of school.
- . The methods of presentation cited by teachers and aides as being most effective were -

Teacher

Aide

lecture followed by discussion  
with all participants

use of classroom model (actual  
kindergarten classroom)

use of classroom model (actual  
kindergarten classroom)

use of experienced kindergar-  
ten teachers

use of experienced kindergar-  
ten teachers in pre-service  
program

lecture followed by discussion  
with all participants

use of consultant, Dr. Helen  
Robison

- . The overall administration and organization of the pre-service meetings were assessed as being well planned with few problems (100%) and extremely satisfactory (85%) by teachers; as well planned to fairly well planned (71%) and extremely satisfactory to satisfactory (57%) by aides.



- . Teacher and aide evaluations of the room arrangements and facilities for the pre-service indicated that (1) Edsall Park Elementary School was most satisfactory; (2) the James Lee Media Center, next; and (3) George Mason College, last.
- . 85% of the teachers and 71% of the aides stated that overall opportunities for participant discussion and interaction were more than adequate.
- . 85% of the teachers and 57% of the aides indicated that the information derived from the total pre-service program was very useful.
- . The majority of teachers and aides (more than 57%) indicated that the time allotment for preparing the classroom and planning for school opening was average down to inadequate.

Additional representative comments derived from the survey included the following:

"The aide and the teacher need more time together to plan and discuss the program and activities as well as what their philosophies and opinions are."

"Better coordination with those responsible for delivery of materials would make me feel more secure. Also, the conditions at my school prohibited my spending as much time as was needed."

"Need in-service meetings on various parts of the kindergarten curriculum--mathematics, language, social studies."

"Meetings to discuss what other aides are doing and exchange ideas and techniques."

"Keep meetings small to facilitate group discussion, interaction, and exchange of ideas."

"I have taught in the county several years and these meetings are definitely the most useful and interesting in-service meetings I have attended. One reason was the small group and the interaction that took place. Continue participation of experienced kindergarten teachers, as that was so valuable."

"CEEC has done an outstanding job of planning and evaluating. I feel like I am part of a real profession."

### Summary

The findings derived from the teachers and aides who were actively involved in the meetings indicate that the pre-service programs in August and September were successful and useful. The analysis highlighted strengths of the program and it also clearly reported weaknesses or needs as experienced by the teachers and aides. The survey enabled the CEEC staff to use the input data as a basis for future planning for in-service and/or for immediate on-the-job assistance by staff members.

## APPENDIX C

### COGNITIVE DEVELOPMENT

Concepts are the building blocks of thinking. They develop slowly and they are built from percepts, images, and memories. Their development is aided greatly by language or other symbols. Although the child uses words in the development and actual utilization of most concepts, he may evidence a clear understanding of a concept without being able to verbalize it. Russell states that "The variety of a child's concepts, even in preschool years, is exemplified in his language development. While not all separate words he uses are different concepts, they indicate the variety of understandings he possesses. Some of the understandings, such as bell or bed, are so well developed that he uses them in his spoken language. Others not so clearly developed take on a proper meaning when given in context by an adult. The child's understanding vocabulary is always greater than his spoken vocabulary."<sup>1</sup>

In developing a concept, a common characteristic or relationship is determined and, through inductive thinking, a generalization emerges. Thinking becomes more accurate as a child accumulates experience by which he can test or check his concept or generalization. The breadth and depth of his concepts are directly related to his real and vicarious experiences. Any group of children will show a wide range of understanding of different types of concepts. This range usually increases as children grow older. Research has not yet defined what concepts or how many concepts should be known at any

developmental level.

While concepts may be classed into seven categories, the content of concepts is interlocking and interacting. There is much overlapping and probably much mutual reinforcement. One way of classifying them would be:

- mathematical concepts
- concepts of time
- scientific concepts
- concepts of self
- social concepts
- aesthetic concepts
- concepts of humor
- other concepts

Misconceptions are common for young children. Evidence of this is found in their speech. Every parent and educator can relate a humorous anecdote about inaccurate or inadequate concepts, often called "schoolboy boners." Causes of these errors include fuzzy and incomplete perceptions, confusion in memories, lack of experience to test generalizations, and undeveloped ability by the child to determine what features of the environment are important to him.

While concept development *per se* is not a problem for the average or normal child, the type and scope of the normal child's concepts may pose problems for teachers. The complexity of modern life and the demands of modern culture require active intervention by the teacher in helping the child build concepts and generalizations and in pinpointing and clarifying the child's inaccurate or

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<sup>1</sup>Russell, David, *Children's Thinking*. Ginn and Co., New York, N.Y., 1965. p.125

inadequate concepts.

Skills which are important in the development of concepts are: labeling, describing, classifying, and problem solving. Children will vary in skill development; through diagnosis, the teacher will determine a degree of achievement in the skill and will plan to concentrate effort on alleviating areas of weakness.

Concept development cannot be studied directly. It must be inferred from behavior. Some ways of studying it are:

- recording and analyzing speech in both spontaneous and structured situations
- studying a child's products, such as paintings
- observing behavior under a variety of situations

Every child in a kindergarten room should have some type of evaluation, but not all such evaluation need be in depth. Both teacher and aide should be involved in recording speech and behavior. In small group discussions, a tape recorder will facilitate later analysis. If a tape recorder is in constant use in the classroom, it will not be inhibitory. Initial diagnosis will help determine skills which need development and the base level of these skills. Assessment of a child's conceptual development, as evidenced in his speech or behavior, however, should be continuous.

Material in the following section is divided into these categories: Basic Vocabulary, Statement Patterns, Problem Solving, and Classification and Categorization. Diagnostic approaches,

with expectancy levels, are suggested, followed by skill development analysis.

The diagnostic section includes several tasks which will help determine the child's achievement in a particular area. Data received from these tasks overlap and it is not necessary to give all tasks to all children. It is helpful, however, to give an in-depth assessment to those children who evidence difficulty with a task. The in-depth assessment will help fix the skill level and elucidate upon the areas of weaknesses.

The skill development section contains a breakdown of the skill into some of its parts and lists materials and activities which may be used in developing the skill. In most instances, more activities than those indicated will be necessary in developing or fixing a skill. Materials listed are offered as ideas or as an attempt to define characteristics of materials which can be used to develop a specific skill. The level of the materials actually used by the teacher will be determined by the child's ability to function therein. No attempt has been made in the section on materials to give all levels in connection with developing a skill.

One sequence in the use of materials follows:

- real objects
- replicas of objects
- representative objects
- photographs of real objects
- pictures of representative objects (artist's drawings)
- symbolic pictures
- verbalization without objects or pictures



## SKILL: LABELING AND DESCRIBING

Although the average child knows the structure of his language fairly well by the time he is in kindergarten, some children experience difficulty in using and controlling patterns of English syntax. Their speech evidences many mazes (hesitations, false starts, and meaningless repetitions). At times, the children may abandon the ideas they want to express due to the frustrations they experience. Research<sup>2</sup> has shown that unless instruction helps to overcome these barriers to oral expression, the number of mazes and words per maze will increase as the child progresses through the elementary school.

Labeling and describing are skills which constitute a foundation for other skills. To young children, a name is a thing in itself as well as being a fused-in part of the object it denotes. It is conceived of and defined in terms of concrete activity, e.g., "a hole is to dig."

A diagnosis of skill level in labeling and describing might be made by using I. a commercial photograph of a real situation, II. a picture drawn or painted by the child, III. a child's speech, and IV. a child's definitions of words in tasks as follows:

Task I. Commercial photograph of real situation

(Expectancies - The average five-year old should identify elements of the picture and give

<sup>2</sup>Loban, Walter, The Language of Elementary School Children. National Council of Teachers of English, Champaign, Illinois. 1963.

some description or interpretation of the action using complete sentences. *Low achievement* is indicated by an inability to bring elements of the picture together, through description or interpretation, despite being able to name those elements. Sentences are often incomplete. *High achievement* is indicated by identifying and bringing together elements in a story involving sequence of events.)

A. Select a picture meeting these criteria

1. new to the child
2. contains several noun elements which may be described
3. uncluttered with much detail
4. action which could be made into a story
5. within the experiential background of the child

B. Work with one child at a time. Pose a question, "What can you tell me about this picture?" If no response is forthcoming, say, "Tell me all about it." If child names one or two things and stops, urge him on by saying, "Tell me more about it."

C. Give no help. Note type of response, such as:

1. names objects (or unable to name some common objects)
2. describes objects; mostly uses incomplete sentences



3. gives complete sentences, with interpretation of action
4. tells story

Use vocabulary list and scoring procedure given in Wechsler Preschool and Primary Scale of Intelligence.<sup>3</sup>

Task II. Picture drawn or painted by the child.

(Expectancies - Same as those of Task I)

A child who has shown difficulty in talking about a picture which was unfamiliar to him may be able to verbalize more freely about one he has been involved in. Be aware that:

- children in the scribbling stage of art are involved in process and usually unaware of product. Wait until form emerges before using this approach.
- premature forcing of product consciousness could stifle creativity or creative expression.

A. Say to the child, "Tell me about your picture."

B. Record his response, using his vocabulary and sentence structure. Spell words according to his pronunciation.

Task III. Child's Speech

A. Record child's speech as he interacts spontaneously with a peer.

B. Record child's speech in a small discussion group.

Task IV. Child's definitions of words

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<sup>3</sup>Wechsler, David, Manual for the Wechsler Preschool and Primary Scale of Intelligence (WPPSI). *The Psychological Corporation, New York, N.Y., 1967. p. 83-85*

SKILL AREA	MATERIALS	COMMENTS	GAMES
Basic vocabulary			
1.0 Nouns (dog, cat, bicycle)	<p>1.0 Experiences, real and vicarious</p> <p>1.01 Child's own</p> <p>1.02 Structured by the teacher</p> <p>a. cooking</p> <p>b. walking tours</p> <p>c. others</p> <p>1.1 Real objects or replicas</p> <p>1.2 Pictures containing mainly subject elements with little or no action</p> <p>1.21 SVE pictures</p> <p>1.22 Photographs</p> <p>1.23 Pictures from magazines</p> <p>2.0 Same as above</p> <p>3.0 Experiences, real and vicarious</p> <p>3.01 Child's own</p> <p>3.02 Structured by the teacher</p>	<p>1.0 Develop so that:</p> <ul style="list-style-type: none"> <li>- one object may have several names, i.e. sofa, divan, couch</li> <li>- an object can be classified and categorized, i.e., dog, cocker spaniel, animal</li> </ul> <p>1.1 Use same object in different settings and actions</p> <p>1.2 Be aware that children often adopt new words and use them correctly if the meaning is inherent in the context of the language they hear</p> <p>2.0 Develop descriptive words for color, form, size comparison</p> <p>3.0 Use informal conversations and games as effective aides in developing an understanding of spatial relationships</p>	<p>1.0 Make a grab-bag containing small plastic items, such as animals, cars, airplanes, furniture, etc. A child can draw out any item blindly; he must then tell a story about it. At first this may be simply naming the object: "This is a chair," or "I have a green crayon." Later two children may each draw any item and make up a story, jointly.</p>
2.0 Adjectives (yellow, pretty, big)			
3.0 Prepositions (over, under, on)			

SKILL AREA	MATERIALS	COMMENTS	GAMES
		<p>3.01 Allow those children who indicate the need to experience the spatial relationship by going through the actions themselves, i.e. sitting <i>on</i> the chair, standing <i>behind</i> the chair, standing <i>beside</i> the chair, standing <i>in front</i> of the chair.</p> <p>3.1 Use the same objects in different settings and learn the words used to express these spatial relationships.</p> <p>3.2 Develop:</p> <ul style="list-style-type: none"> <li>- association of a heard statement with a picture it represents,</li> <li>- the reverse mental process of seeing the pictured situation and expressing it in language.</li> </ul> <p>3.21 If a child persists in naming the objects without giving the relationships, restrict instruction to develop an understanding of one relationship at a time. For example, the crayon is <i>in</i> the box, the spoon is <i>in</i> the cup, the doll is <i>in</i> the carriage.</p>	
	<p>3.1 Objects in the room (The book is on the table)</p> <p>3.2 Pictures with subject and predicate elements (The boy is under the table.)</p>		

SKILL: MAKING DESCRIPTIVE STATEMENTS

Instruction in sentence patterns has two objectives: to increase capability in (1) selective listening and memory span and (2) in constructing sentences about what is seen rather than what is remembered.

Research has shown that selective listening and memory span have a direct bearing on trains of thought, determining, in part, the amount of material available for problem solving or any other type of thinking. Producing sentences which are complete and which describe a situation promotes familiarity and fluency with varied structural patterns.

A diagnosis might use I. repetition of statements, II. repetition of digits, and III. the child's own speech in the following respective tasks

Task I. Repetition of statements

Simple repetition of oral material stated by the teacher or aide will help determine a child's attention, understanding of word relationships in a given context thereby reproducing gross auditory discrimination, and immediate auditory memory. Use sentences and scoring given in the WPPSI.<sup>4</sup>

Task II. Repetition of digits

Children able to repeat sentence patterns through 10 with a score of 15 or more need not be screened for digit span. Children who evidence difficulty should be checked with digit span item.

(Expectancies - the average Fairfax County five-year-old can repeat four digits; i.e., 6285. Inability to repeat at least four digits is thus below average and ability to repeat more than four digits is above average for Fairfax County five-year-olds.)

A. Say the digits with perfectly uniform emphasis.

B. Give a maximum of three trials for any given set of digits (a,b,c).

C. Stop after first correct repetition with a given set and proceed to next higher level (example: set (a) 6-2; if set (a) correctly repeated, set (b) 4-7-1.

D. Discontinue whenever a child misses all three trials with any one set of digits.

E. Say, "I am going to say some numbers, listen carefully, and when I am through, say them right after me."

(a) 6-2	(b) 5-7	(c) 6-5
4-7-1	3-6-5	3-8-7
3-6-1-7	1-6-8-5	5-2-4-1
3-1-9-5-8	3-7-8-2-4	6-9-1-8-3

To determine a child's ability to produce sentences, record statements of the child as he looks at a picture. Peer group conversation can also be recorded. See "The Diagnostic-Prescriptive Approach," page 12, for complete description of assessment procedure.

<sup>4</sup>Ibid.



Comparison of child's sentence patterns with the sentences as noted above can give an indication of structural patterns he uses. While Loban<sup>5</sup> found that the kindergarten child is able to use all structural patterns in his speech, children with low achievement in language use many more partial expressions, that is, sentence patterns that are incomplete.

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<sup>5</sup>Loban, Walter, *The Language of Elementary Children. National Council of Teachers of English, Champaign, Illinois. 1963.*

# SKILL DEVELOPMENT IN MAKING DESCRIPTIVE STATEMENTS

SKILL AREA	MATERIALS	COMMENTS	GAMES
4.0 Auditory memory span	4.0 Games involving selective listening, discrimination and memory a. action response b. verbal response	4.0 A child's ability to follow directions is partially dependent upon auditory memory. Therefore, a child with a short auditory memory may be able to remember and follow only one simple direction. If so, the teacher or aide may need to help him individually until memory span can be lengthened.	<p>4.0 Teacher produces a pattern of sound by tapping the table with a ruler, the pattern being produced by the length of the period of silence between taps.</p> <p>1234 1 234 12 34 12 3456 78</p> <p>Child (may be a small group or individual) is blindfolded. He reproduces pattern by clapping. Complexity of pattern may increase as child evidences ability to discern and reproduce longer and more complex patterns. If child is unable to do this blindfolded, add visual sense and gradually work toward ability to use auditory sense alone.</p> <p>4.01 Make a tape recording, using rhythm instruments familiar to the child. Have the instruments placed on a table where the child or small group of children can see them.</p> <p>Sounds on the tape should be sequenced to identify one instrument at a time, then two instruments,</p>

SKILL AREA	MATERIALS	COMMENTS	GAMES
5.0 Sentence patterns	5.0 Games involving statements on color, shape, size, location, use		<p>three, four and five. The child should listen to the sound, then pick up or point to the proper instrument. Those involving two or more instruments should be identified in the same sequence played. A statement should be made by the teacher between each group of sounds in order to separate them and to prepare the children for a longer span of listening (between one and two, two and three, etc.) Pattern within each level should go from sounds which are very different to those which are similar.</p> <p>5.0 Make a large cutout of colored felt or construction paper, such as a red apple, a green tree, a purple triangle, etc. Call two children away from small group. Have them close their eyes. Pin a cutout on back of each. Lead them to center of group and place them facing each other. They open eyes and teacher says "go" and each tries to jockey about to see what is on the other's back. The first child to see, calls "I see." They stop</p>

SKILL AREA	MATERIALS	COMMENTS	GAMES
			<p>and he tells what he saw in a sentence. "I saw a purple triangle." The other child turns and he checks. If he is right, he turns and the second child says what he sees pinned on the other's back. New "its" are chosen.</p> <p>5.01 Select figures of people and animals from block accessories (community helpers, the family, wild animals, farm animals). Set the characters in the middle of the table or in the center of the small group on the floor. Choose some figures from the group and move them into a position. Tell a story about them. Use any of the following variations:</p> <ul style="list-style-type: none"> <li>- a child moves the figures; the teacher tells the story</li> <li>- the teacher moves the figures; a child tells the story</li> <li>- a child moves the figures; another child tells the story</li> <li>- the teacher tells the story; a child moves the necessary figures into</li> </ul>



SKILL AREA	MATERIALS	COMMENTS	GAMES
			<p>proper positions</p> <p>5.02 Make cutouts of felt or construction paper. with small group of 8-10 children make a circle. Put cutouts in center. Teacher says, "John, put a green triangle beside a purple circle." John searches through cutouts and follows the direction, stating, "I put a green triangle beside a purple circle." Use following variations:</p> <ul style="list-style-type: none"> <li>- teacher gives directions; child follows and restates direction;</li> <li>- child gives directions; teacher follows and restates directions;</li> <li>- child gives directions; another child follows and restates directions</li> <li>- a situation is set up by a child; another child explains it</li> </ul>

## SKILL: SOLVING PROBLEMS

A problem may be defined as any task which a child can understand but for which he does not have an immediate approach. Problem solving, then is the process by which the child arrives at a solution to the problem.

Problem solving activities of the young child usually occur in connection with concrete, immediate situations rather than abstract, verbal ones. There is ample evidence from research projects, however, that children as young as two-and-a-half to three years of age are capable of reasoning and solving problems. During the pre-school years, problem solving abilities develop rapidly with (a) accumulation of information (b) increasing ability to see relationships and grasp patterns of ideas (c) acquisition of more modes of attack on problems.

Skill areas relate, in part, to aspects of certain types of problems encountered by the young child. Since, as implied in the definition given above, a problem varies with the individual and may be related to any task, the three areas (a, b, c, above) may serve as a framework for denoting needed abilities. With greater experience, the child is more varied in his search patterns, more flexible in suggesting solutions, and more critical of possible solutions suggested.

In a diagnosis, the teacher may use I. observation of block building, II. observation of work with puzzles, III. magazine pictures, and IV. posing a problem situation in the following respective tasks:

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<sup>6</sup>Russell, David, *Children's Thinking. Ginn and Co. New York, N.Y., 1965. p. 125*

### Task I. Observation of block building

A. Observe the child as he plays in the block building area

1. Does he deal only with single blocks or with different block combinations?
2. Does he build a structure and then name it or does he decide beforehand what he wants to build and then build it?
3. How does he solve problems of balance?

- randomly, aimless and blundering
- erratic trial and error, same repetition of modes already tried
- systematic exploration and elimination, trying out, discarding and trying another
- immediate solution, without obvious exploration, use of knowledge gained through prior experiences

4. Does he use the knowledge he has gained in playing with blocks in dramatic play and representation?

### Task II. Observation of working with puzzle

A. Choose a puzzle new to the child but at a level he can solve.

B. Show it to him for about 30 seconds.

C. Dump the pieces on the table and mix them up.

D. Observe:

1. Does he take time to consider the problem before he begins fitting parts?
2. Does he organize the pieces in a way which will help as he works?
3. Does he make the same mistake several times by trying the same piece in the same wrong area?
4. Does he use color cues, shape cues, or size cues?
5. Does he ask for help?
6. Is he able to attend to the task for the amount of time necessary to complete the puzzle?

#### Task III. Magazine pictures

A. Select a picture which meets these criteria:

1. new to the child
2. contains one noun element which is familiar to the child and is the main focus of the picture; i.e., horse, dog, man's head, man.

B. Cover the picture completely. Put it on the table before the child.

C. Uncover the picture gradually, stopping at times for discussion. Ask, "Do you know what this picture is? Can you guess? Note:

1. Is he willing to guess?
2. Are his guesses relevant to the content of the picture?
3. Does he look to the adult for cues; i.e., facial expression cues?
4. How many cues are necessary before he is able to identify the picture?

#### Task IV. Pose a problem situation

A. Talk with an individual child or with a small group. Ask, "What should you do if you found a small child who was lost? Suppose you were on your way home from school and you saw a little boy who had lost his parents." Any social situation within the experiential background of the children may be used.

B. Note ability to:

1. project into an imaginary situation
2. use previous experiences in suggesting solutions
3. suggest realistic "common sense" solutions

SKILL AREA	MATERIALS	COMMENTS	GAMES
6.0 Acquisition of factual knowledge which is partially new	6.0 Investigate and learn to name parts of known objects	6.0 Use objects (real or replicas) which can be examined, such as pencil paintbrush airplane tricycle eyeglasses piano	
7.0 Relating specific knowledge to action	7.0 Investigate function of parts of known objects	7.0 Pose questions, such as:  What happens when a piano key is struck?  What happens to the blades of a manual eggbeater when the crank is turned?	
	7.1 Locate objects by the use of maps of: classroom school yard	7.1 Children and teacher make floor plans of their room:  - three dimensional--miniature furniture for tables, chairs, piano, etc.  - unit blocks to represent objects  - two dimensional--draw the three dimensional model on large newsprint, using different colored crayons to emphasize different objects represented in the drawing	7.1 Treasure Hunt Walk: Teacher sketches pictures of objects to be found in specific places in the school yard (or pastes the actual objects, such as a red maple leaf, on the map). Children go on a treasure hunt walk in which they attempt to find the objects by following the map.
	7.2 Weather maps clipped from newspapers		



SKILL AREA	MATERIALS	COMMENTS	GAMES
	7.3 Weather reports on television		
	7.4 Use road signs, such as:  Stop Go Yield	7.4 Use in dramatic play with some vehicles, such as wagons or other objects which can become "pretend" busses, cars, or trains	
8.0 Noting discrepancies on basis of knowledge  -inappropriate parts -missing parts	8.0 Present pictures containing incongruities made by using or combining pictures from magazines or drawn by teacher  -have real objects or replicas of objects to use for comparison	8.0 Examples:  -an open umbrella without staves or ribs -barefoot children playing in the snow -an apple tree with a potato replacing an apple -a bicycle with no pedals	
9.0 Using knowledge to obtain further knowledge  -formulating questions	9.0 Investigate source of information  books picture dictionaries magazines newspapers photographs television filmstrips maps older children adults personal observation	9.0 Encourage children to ask questions. Be aware of common pitfalls: -irrelevant questions -questions which focus on unimportant details -poorly phrased questions which do not communicate  Have children rephrase, re-think, and re-evaluate their questions in order to ask what they really want to know.  Provide enough background experiences to enable children to design some really significant questions	9.0 Play "Who Has The Chalk?" with a small group seated in a circle. Have children close eyes and put chalk in one child's hand. Children open eyes. At first, the teacher supplies the information, "It is a boy, he has brown hair, he is wearing a blue plaid shirt," until children guess. Later, the children formulate questions, with the teacher answering. A child asks, "Is it a boy?" and the teacher answers "Yes." Another child asks and another until the child with

SKILL AREA	MATERIALS	COMMENTS	GAMES
		<p>Offer many opportunities for asking questions of</p> <ul style="list-style-type: none"> <li>-total group</li> <li>-small group</li> <li>-individual</li> </ul> <p>Refer to various sources of information</p>	<p>the chalk is discovered.</p> <p>9.1 "Policeman, Find My Child."            From a small group of children, select a policeman. He leaves the room while a mother or father and a child are selected. The mother stands up and the policeman is called in.</p> <p>Mother: "Oh, Policeman, please find my child."            Policeman: "Is it a boy or a girl?"</p> <p>The policeman asks questions and the mother (or father) answers, trying to describe the child without looking at him. The policeman tries to find the child from the simple description.</p>
10.0 Learning to seek alternate routes to information		<p>10.0 As children become competent in asking questions and using information in the games, close off certain types of questions. Examples:</p> <ul style="list-style-type: none"> <li>-children may not ask color of anything</li> <li>-children may not ask if person is boy or girl</li> </ul>	
11.0 Developing variations on a fixed logical	11.0 Well known songs	11.0 Children compose words or verses to songs they know	

SKILL AREA	MATERIALS	COMMENTS	GAMES
pattern			
12.0 Formulating hypotheses to explain events or situations	12.0 Use children's own experiences	12.0 Use "What do you think will happen?" and "Why" questions to encourage divergent thinking and answers.	
	12.1 Use pictures from magazines and newspapers		

## SKILL: CLASSIFYING AND CATEGORIZING

Concepts are organized into hierarchies of relationships or categories. This is usually an unconscious process of abstract thinking about common characteristics or relationships which leads to detaching aspects of a situation from a whole and experiencing the separate qualities in isolation. It is effected by different functions on different levels and is not, therefore, determined by age.

Categorization, grouping of the environment or elements of a situation, may occur without the child being able to explain his reasons for putting members of a group together. For while language patterns may be developed, the child's ability to describe reality lags behind language facility. At the same time, the child's cognitive structure is restricted by his perceptual structure or by his ability to extend beyond what he sees. Thus, young children are often said to be "perceptually bound" in their thinking. Younger children are primarily responsive to the surface perceptual qualities and are unconcerned about the relation of what they see now and information encountered earlier or information to be given later.

If asked to group objects in a situation or in his environment, he will usually (by age four) group on the basis of only one selected category, which may be either color or form. He will be unable to subdivide or subgroup; grouping by more than one element at a time (color and form) requires the ability to shift a point of view from one quality to another. For example: given a set of parquetry blocks (blue, red and green; squares, triangles, and circles), a five-year-old will usually group them in this way:

- by color or by form; all blues, all reds, all

greens or all squares, all triangles, all circles

Later, he may group in this way:

- by color and form; all blue circles, all blue squares, and all blue triangles, all red circles and all red squares, etc.
- by color, form and size; all blue circles ordered from smallest to largest, etc.

Thus, younger children tend to be guided in their classification task by one perceptual feature at a time and as they grow older they are able to deal with several features of the task at once. Generally, they are able to do a task before they can accompany their solution with an explanation of why they have grouped certain objects together.

Gradually, children shift the groupings on perceptible attributes to those based on functional or nominal properties of things. Conceptual content of groups may follow this sequence:

perceptible-color, form, material

color

"They are red."  
"They have colors."

form

"They are round."  
"This is longer than that."

height

length

width

number of sides

curvature

regularity



## material

"These are rough."  
"They have seeds."

functional - use

what they do  
what can be done to them  
"They keep us warm."  
"We eat them."

nominal - implicitly functional

applying a conventional name that exists in the language  
"The peach and the apple are both fruit."

Categorization is classification with increasing differentiation, i.e., dime, money, metal object, inanimate thing; Prince, collie, dog, quadruped, animate being. For a child, the name used is determined by community use or preference and is the one most commonly used by those around him. Thus, *fish* is likely to be used before *bass* or *perch* and *car* before *Ford* or *Mustang*. Vocabulary does not build from the concrete to the abstract more often than from the abstract to the concrete. Children appear to form large abstract categories early--the word *dog* may be applied, at first, to all four legged animals. As more distinctions are made, more categories are made.

In school, children need experience in organizing the real environment and in using language to describe that organization. Bruner<sup>7</sup> states, "He can muster words and sentences with a swift and sure grasp of highly abstract rules, but he cannot, in a

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<sup>7</sup>Bruner, Jerome. *Studies in Cognitive Growth*, John Wiley & Sons, Inc. New York, N.Y. 1966. p.47

corresponding fashion, organize the things words and sentences stand for . . . One is thus led to believe that, in order for the child to use language as an instrument of thought, he must first bring the world of experience under the control of principles of organization that are in some degree isomorphic with the structural principles of syntax."

Thus, the young child is provided with classification activities which develop his perceptions and his awareness of relationships. Manipulation of the real or concrete is accompanied by descriptive language focused on similarities and differences of the objects under study.

In a diagnosis, make use of I. geometric shapes--3 colors, 3 shapes, II. geometric shapes--2 colors, 2 shapes, III. geometric shapes--varied colors, shapes, sizes, and IV. array of pictures (about forty) in the tasks which follow.

Expectations--The average five-year-old will classify by color or form. The child with little experience in classifying may have no perceptible way of grouping. The child who is advanced in this area may be using perceptual and functional ways of grouping.

Many five-year-olds will be unable to perform in Task IV. Expectations as given by Bruner<sup>8</sup> are:

1. About 61% of all groups formed by six-year-olds consist of pairs (although the pairing could logically be extended to include other items).
2. Many of the pair groups are formed by

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<sup>8</sup>*Ibid.*

grouping them in a sentence, "The bees stung the cow."

#### Task I. Geometric shapes

- A. Use geometric shapes, such as:
- squares--2 blue, 2 yellow, 2 red (or other colors)
  - circles--2 blue, 2 yellow, 2 red
  - triangles--2 blue, 2 yellow, 2 red

B. Put all objects on table before the child and tell him "Put all these objects in 3 separate groups so that the objects in each group are alike in some way."

C. Observe grouping characteristics--color or form.

D. Ask, "Is there another way of grouping these?"

E. "How did you decide what to put in each group?" Note ability to verbalize.

F. If child is unable to understand the task, use Task II, which is easier.

#### Task II. Geometric shapes<sup>9</sup>

- A. Select a number of red circles and

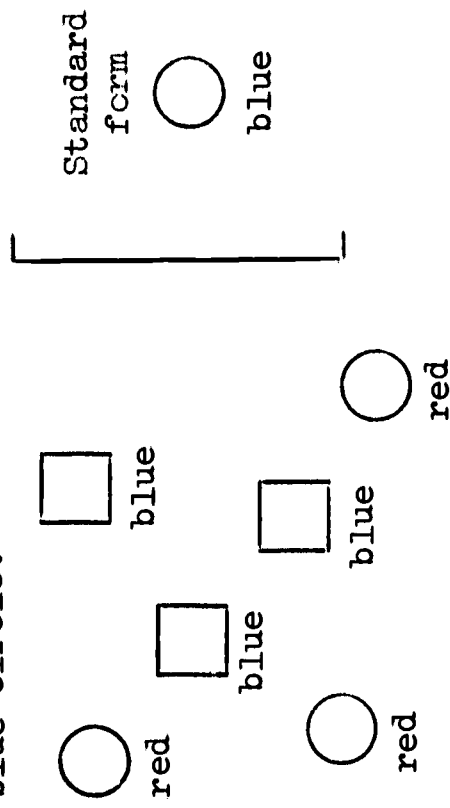
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<sup>9</sup>Based on Katz experiment with color-form abstraction as described by Heinz Werner in Comparative Psychology of Mental Development, Science Editions, Inc., New York, N.Y. p. 235

blue squares.

B. Place before the child

C. Have child match those figures which are the "same" as a standard form presented separately. (See diagram below.) The standard form is either a red square or a blue circle.



D. Note whether child matches by color or by shape.

Task III. Geometric shapes of varied color shapes and sizes

Proceed as with Task I. Observe child's groupings to see if subgroups are formed using all three characteristics.

#### Task IV. Array of pictures<sup>10</sup>

- A. Make an array of 25-30 pictures with overlapping of color, form, function.

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<sup>10</sup>Based on an experiment given by Rose Oliver and John Hornsby in Studies in Cognitive Growth, John Wiley and Sons, Inc., New York, N.Y. 1966. pp. 79-85

Examples:

red house  
red apple  
red flowers  
garage with red roof  
red and blue balloons  
garage with red roof and containing a  
blue car  
a yellow taxi  
yellow sun  
an airplane  
a tree  
brown gloves  
black boots  
brown shoes  
orange pumpkin  
orange carrots  
brown umbrella  
a cow  
a brown dog  
a white rabbit

- G. Go through this procedure four or five times, each time replacing the pictures with the total group, thus allowing him to choose from the full array of pictures each time.

- B. Put each picture on an individual card.
- C. Place each card on table and ask child to identify. If he is unable to name a picture, tell him what it is.
- D. Ask child to choose pictures that are alike in some way--any way at all in which a group of things is the same.
- E. When he has completed the grouping, ask him to tell how the pictures he selected are alike.
- F. Replace the pictures in the original group and ask him to form another group.

# SKILL DEVELOPMENT: CLASSIFYING AND CATEGORIZING

SKILL AREA	MATERIALS	COMMENTS	GAMES
13.0 <u>Classification</u> Understanding why things are in same or different groups	13.0 Use objects around the schoolroom or house	13.0 Give instructions to small group:  Find all the blue things Find all the furniture Find all things shaped like a triangle	
	13.1 Collect an assortment of objects varying in size, shape, texture and color  buttons various dried beans screws shells pebbles colored corn	13.1 Use muffin tins or trays. Put an assortment of objects before the child beginning with a small number to be sorted into groups. Gradually increase the amount to be sorted. As the child's ability to sort objects which are very different (such as buttons and screws) increases, gradually shift to sorting or classifying objects which are within one category (such as buttons).	
	13.2 Cut picture from magazines  furniture foods people	13.2 Have child pile them into groups he has chosen and then explain his reason for grouping.	
	13.3 AAAS materials, Part A, lessons d,s,v on classifying		



SKILL AREA	MATERIALS	COMMENTS	GAMES
14.0 <u>Serialization</u> Sequencing; putting things in 1-2-3 order	14.0 Objects from the environment  pebbles seashells photographs of an activity involving the children     14.1 AAAS materials Part A, lesson k on ordering lengths	14.0 Place certain household ob- jects in order from lightest to heaviest  Name household objects from lightest to heaviest  Arrange glasses of water from empty to full  Arrange people from shortest to tallest  Arrange pebbles (or seashells) from smallest to largest  Arrange photographs of activ- ity involving the children in order of happening	
15.0 Similar- ities and differ- ences	15.0 Objects from class- room, school ground, and environment	15.0 "How is a dog different from a cat?"  "How are a dog and a cat the same?"  "How is a car different from a truck?"  "How are they the same?"	15.0 Prepare several large charts of pictures arranged in squares and sets of small cards with duplicate pic- tures. Two children may play a game by giving each child one large card and corresponding small cards placed in a pile face down. Each player selects a card from the top of his pile. If the picture matches one of the pictures on his big card, a player places it on

SKILL AREA	MATERIALS	COMMENTS	GAMES
	15.1 Pictures of objects in the environment.	<p>16.0 "Brother is a boy; sister is a ____."</p> <p>"The snail is slow; the rabbit is ____."</p> <p>"A table is made of wood; a window of ____."</p>	<p>top of it and draws another. He continues drawing until he draws a card which does not match. He then places it on the bottom of his pile and it is the next player's turn. Whoever covers all the pictures on his big card first, wins the game.</p> <p>Picture dominoes: Make small cardboard cards with two separate pictures per card--one at each end of the card. Children play the game like dominoes, except they match the pictures.</p>

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## APPENDIX D

### PATTERNS AND DESIGN

With the development of logical, concrete thinking, the child begins to grasp the notion of *classes* and of logical *relationships*. He demonstrates this grasp through his ability to order objects in series by size, height, color, and so forth. Patterns then provide the child with experiences that provoke thinking and discovery. Patterning also represents his ability to perceive a whole and the relationship of the parts within the whole as determined by repetition and design.

Concrete objects, such as beads on a string, cubicle or parquetry blocks, and pegboards should be used in the earliest stages of patterning. Because of the complexity of the task of pegboard design, experiences with beads and blocks should precede pegboards. Later, colored construction paper and felt shapes may be gradually used.

About 30 minutes per week per child should be spent in working with instructionally oriented manipulation of patterning materials. All patterns or designs should be checked by the teacher or aide when completed by the child.

### BEAD DESIGN

#### An Individual or Small Group Activity

#### Purposes

- to increase visual discrimination of figural materials,
- to develop hand-eye coordination,
- to provide kinesthetic clues to help the child discriminate between different shapes,
- to provide practice in left-to-right progression.

#### Pattern Sequence

Patterns should be structured to provide increasing difficulty and a concept of design as a recurring pattern:

- 1 shape with 2 colors
- 2 shapes with 1 color
- 1 shape with 3 colors
- 3 shapes with 1 color
- 2 shapes with 2 colors
- 3 shapes with 3 colors

#### Manipulative Sequence

The child should have experience with the following levels of manipulation:

- Free manipulation of beads for familiarity with shapes, colors, textures, and resistance of the bead as it is strung on a lace.
- Manipulation, under the supervision of the teacher, which uses the sequence of patterns given above and allows the child to



- . copy a design strung by the teacher, with the design in front of the child,
- . reproduce a bead design from a pictorial representation,
- . create a bead design of his own.

### Guidelines

- Each task should have its own box of beads. Beads for creative productions should include four shapes and four colors.
- The child matches shape and color, left to right.
- During initial instructional periods, attention should be focused on differences in shapes and colors. Appropriate names for colors and shapes should be used.
- Observation during the free manipulatory period should help determine possible pattern and manipulative sequence as a first step in evaluation. An assessment of the child's ability to deal with levels of pattern and manipulation should follow the free manipulatory period.
- A child's success in duplicating designs determines how rapidly he can move from one level of complexity to another.
- Creative design may occur at any level. The child may intuitively design a pattern and be unable to explain its sequence of repetition. A higher level of creative design occurs when he is able to explain his pattern or when he has a pattern in mind and attempts to produce it.
- The idea or concept of design can often be strengthened by helping children notice examples of patterns or rhythms found in the environment.

### BLOCK DESIGN

Design in cubicle blocks, which are all the same shape, is dependent upon repetitive patterns of various colors.

### Purposes

- to promote facility in gauging spatial relationships,
- to develop ability to synthesize a whole from a number of discrete parts,
- to extend understanding of design to include symmetry,
- to promote facility to recognize and reproduce form (pre-reading).

### Pattern Sequence

Patterns should be structured to provide increasing difficulty and a concept of block design as a recurring pattern of color and/or space:

checkerboard

b	r
r	b

rows

b	b	b	b	b
r	r	r	r	r

rows

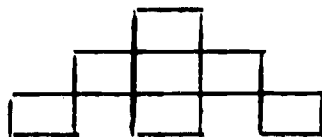
b	b	b
r	r	r
g	g	g
b	b	b

combinations

r	b	r	b	r
g	g	g	g	g
w	w	w	w	w
g	g	g	g	g
w	w	w	w	w

r	b	r	b	r
b	g	g	g	g
r	w	w	w	w
b	g	g	g	g
r	w	w	w	w

designs



### Structure of Manipulation

- Free manipulation of blocks
- Design made by teacher reproduced by child with model in front of child,
- Design on card, with full-size block outlines ruled in black, reproduced by child's placing appropriate blocks directly on card,
- Design reproduced *beside* design card rather than *on* it,
- Child's own design created in either horizontal or vertical pattern.

### PEGBOARD PATTERNS

#### Purposes

- to develop form perception and hand-eye coordination,
- to develop visual memory (pre-reading).

#### Pattern Sequence

- Single color, solid in straight line
  - . horizontal, left to right
  - . vertical, top to bottom
  - .. using edge of board first
  - .. placing design away from edges
- Single color, alternate holes
- Alternating two colors, solid in straight lines
- Simple geometric designs
  - . square
  - . rectangle
- Diagonal lines
- Geometric design
  - . triangle

--Adjacent forms

.... .  
 . . .  
 . ....  
....

--Interlocking forms

: .....  
: .....  
 . . . .  
.....  
.....

Manipulative Sequence

- Free manipulation of pegboard and pegs to become familiar with the material and the feel of putting the peg into the board,
- Manipulation guided by the teacher who sets up pattern to be copied on her pegboard, calling attention to placement of line and other necessary details,
- Model set up by teacher on a board and left in view, then copied by child,
- Model shown to child only briefly and when child begins work put on a printed grid and placed next to pegboard for copying.

. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .

- Design of varied complexity created by the child.

Guidelines

- This can be either an individual or group activity.
- Make sure child can construct figure and understands orientation of figure on board.
- Figure should then be duplicated not only in terms of its form, but also of its position on the board.
- Golf tees or pegs with flat heads will help children who have difficulty in perceiving the form.

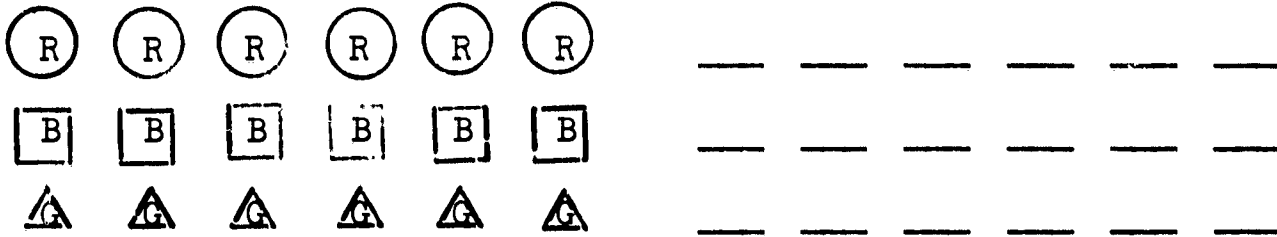
PARQUETRY BLOCKS

The kindergarten child should have access to the blocks for free manipulation and creative design, and he may use the printed design included in the box with the blocks to reproduce the design by building directly on it. But because of the complexity of reproduction tasks using parquetry blocks, structured designs to be copied should not be used before the primary grades.

## PATTERNING WITH COLORED CONSTRUCTION PAPER OR FELT

Patterning activities may progress from work with concrete materials to work with colored construction paper or felt. Shapes in appropriate colors and sizes should be available to the child. The pattern is begun by the teacher and completed by the child. A possible sequence could be the following:

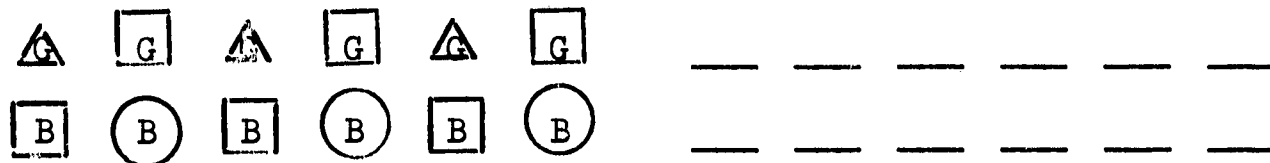
One shape, one color



One shape, two colors



Two shapes, one color



Two shapes, two colors



One shape, one color, two sizes



One shape, two colors, two sizes



Two shapes, two colors, two sizes



One shape, one color, two positions



One shape, one color, increasing size





One shape, one color, decreasing size



Increasing size using 2 shapes, one color



Decreasing size using 2 shapes

Increasing size using 3 shapes

Decreasing size using 3 shapes

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## APPENDIX E

### EVALUATION BY DR. HERBERT A. SPRIGLE, DIRECTOR LEARNING TO LEARN SCHOOL, JACKSONVILLE, FLORIDA

During the 1967-68 school year, CEEC's Kindergarten Supervisor and its Evaluation Specialist made a trip to Jacksonville to observe the program at the Learning to Learn School and to consult with the school's director, Dr. Herbert A. Sprigle, regarding the CEEC kindergarten program. From this visit came the decision to ask Dr. Sprigle to serve as a consultant for CEEC during the 1968-69 school year. As a first step, a copy of *Kindergarten, 1967-68: An Evaluation Report* was forwarded to Dr. Sprigle. His reaction to the report is presented on the following page.

On February 27 and 28, 1969, Dr. Sprigle visited Fairfax County to observe at two of the experimental kindergarten classes and to exchange ideas with the CEEC staff regarding the program. In this connection, he met with five CEEC staff members and, in addition, John Hurley and Mrs. Catherine C. Murphy of the Fairfax County schools' Psychological Services to view video tapes developed by CEEC and to show video tapes developed at the Learning to Learn School. Following this meeting, Dr. Sprigle was asked to provide an evaluation of the CEEC kindergarten program. That evaluation begins on page 122.

# LEARNING TO LEARN SCHOOL, INC.

(A Non-Profit Organization)



1936 SAN MARCO BLVD.  
JACKSONVILLE, FLORIDA 32207

TELEPHONE: 359-2334  
AREA CODE 904

December 7, 1968

Mrs. Evelyn Valotto  
Fairfax County Schools  
5920 Summers Lane  
Bailey's Crossroads, Va.  
22041

Dear Mrs. Valotto:

First of all I want to say how very impressed I am with the way in which Fairfax County Schools go about effecting change.

The thoroughness and comprehensiveness of your planning, development, implementation, and evaluation of the kindergarten program gives the reader the impression that the project was in the hands of very capable professionals and is a dramatic illustration of how schools can keep abreast of the times with leaders who have imagination and vision. There is an important message here for all educators and school boards, and I hope you intend to publish it in a professional journal.

As soon as your plans are crystallized for my visit with you, please pass them on to me. Please indicate areas of the kindergarten program you would like to cover. Whatever they are, I hope there is an opportunity for an exchange of ideas. If it is possible, I would like to visit one of your kindergartens, preferably before we get together, even if it means going up the day before to observe an afternoon class.

Thank you for the opportunity to read the evaluation report. I am looking forward to hearing from you.

Sincerely,

*Herbert A. Sprigle*

Herbert A. Sprigle, Ph.D.  
Director, Learning To Learn School, Inc.

# LEARNING TO LEARN SCHOOL, INC.

(A Non-Profit Organization)

1936 SAN MARCO BLVD.  
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TELEPHONE: 359-2334  
AREA CODE 904

March 28, 1969

Mrs. Evelyn Vallotto  
Center For Effecting Educational Change  
5920 Summers Lane  
Bailey's Crossroads, Virginia 22041

Dear Evelyn:

The purpose of this letter is twofold. I would like to share with you and Ron my observations and impressions of the classrooms I visited the first day. And the second is to suggest an outline that can serve as a guide to the teacher in the assessment of children in her class.

The behavior of the children in both classrooms must have been most outstanding as I can still vividly reconstruct the environment and atmosphere of both classes. The level of the emotional, social, and cognitive development of the children as a group is above average. I was favorably impressed with the degree of independence and the responsibility they assume for themselves and others.

Just as striking, but not too surprising since cognitive development is related to the above, is how receptive the children are to cognitive stimulation. As I sat and watched how they got involved and absorbed in a highly verbal, abstract discussion, I began wondering what these children would do with manipulative tools that would bring out the potential that obviously lies within ready to gain expression. I hasten to add, however, that the children's performance in the first class was a function of a highly skilled teacher, in tune with children and sensitive to their needs. I believe her expertise would be even more apparent with a more structured program of cognitive stimulation of a process approach. This would permit her to ask questions of greater substance than those that are aimed at content. Such a program would include materials to be used in small groups which would permit manipulation and exploration on the one hand and elicit discussion and free expression on the other.



You will recall that the discussion of the second day focused on how to combine the talents and skills of both the school psychologist and classroom teacher in such a way that the latter can be trained to make detailed observations of each child's strengths and weaknesses. I recommended that the school psychologist's time, energies and talents could be utilized most effectively and efficiently by working directly with the teacher and the children in the classroom and small groups. In this way both would make the same observations which could be examined and analyzed together. You will recall that I recommended this approach as a way of fostering mutual respect and confidence and avoiding the problems and guarded relationship that develops when the psychologist infers classroom behavior and their solutions from test items. The use of video tapes of the whole class and small groups, which can be viewed by the psychologist, teacher and supervisor, to develop in the teacher a greater sensitivity to what she is observing should also be explored.

The outline below has been used in our work with teachers. A procedure whereby the psychologist and teacher worked together in the classroom and then sat down to discuss and pool the observations was very effective in training teachers to make fairly accurate assessments of the children. Video tapes of children working in large and small groups can solve the problem of one psychologist having to serve many schools. Assessment, to be an effective means of getting to know a child and planning for his growth and development, must be continuous and ongoing. The materials the teacher uses with small groups become instruments of learning for the child and evaluation tools for the teacher. Assessment is of little value, and certainly not worth the time and effort, unless it can be actually used by the teacher to plan and chart the child's development throughout the school year.

Thank you again for the opportunity to visit with you and Ron and exchange ideas. It's always a pleasure to work with people who generate new ideas and can implement them with an effective program.

Sincerely yours,

Herbert A. Sprigle, Ph.D., Director  
Learning To Learn School, Inc.

## SMALL GROUPS

1. Length of attention span (compared to other members of group).
2. Ease of distraction by competing stimuli
  - a. The slow developing child gets up to investigate noise, to see what's in the bag.
3. Degree of control
  - a. The slow developing child runs ahead of teacher, or runs and hides from the teacher.
  - b. The fast developing child gets down quickly to work and shows quick involvement.
4. Frequency with which material brings up personal references and how these carry off the child into associations that are irrelevant to the task at hand.
  - a. Fast developing children's associations are relevant. They are in tune with what is going on in the group.
  - b. Slower children are in tune with themselves. Conversation is irrelevant.
5. Group cohesiveness
  - a. Faster children work as a group, are sensitive to the other members of the group and respond to each others conversations.
  - b. The group of slower developing children is really a collection of individuals. There is constant competition for the teacher's time and attention.
6. Degree of dependency on the teacher
  - a. Faster children stay within the structure of the game. They will take over and keep it going. They are quick to point out errors and keep the conversation going on the right track.
  - b. With slower children the teacher must draw out the conversation. She must correct errors because the child pays close attention and is involved only when it is his turn or has the teacher's attention.

## SMALL GROUPS (continued)

- c. Teacher must compete with materials with the slow children. They do not respond to words and are not listening. Words do not attract them.

### 7. Quality of language

- a. Slow developing children seldom carry on a spontaneous conversation with other group members. Their comments are usually highly personal. Not infrequently they speak in phrases and incomplete sentences, misusing pronouns and omitting verbs.
- b. Faster developing children exchange ideas and carry on a conversation. They are in tune with the speaker and respond appropriately. They have a rich vocabulary and syntax is quite accurate.

## LARGE CLASSROOM

### I Two weeks observation for initial grouping

#### A. Two adults - each observing half the class

##### 1. Child's encounter with activities

- a. How many different activities
- b. How long does he engage in each activity
- c. Quality of involvement with material
- d. Extent and quality of language

Extent of involvement in sedentary activities

#### B. Behavior characteristics - ability to come to terms with the demands of the school setting.

##### 1. Behavior which make it difficult to take advantage of the opportunities of the classroom.

- a. Inhibited child who shows constricted feelings, little drive and no sustained interest in anything. Wanders from one thing and place to another, many times trailing after the teacher. Talks very little or not at all.
- b. Child who is stimulated by any and all stimuli. Very easily and quickly distracted by and drawn to the source of stimulation where he remains only until the next distraction. Attention, concentration very short. Moves quickly and frequently from one activity to another.
- c. Child who functions at a high level of tension and excitement which he manifests through loose, wild, uncontrolled, and impulsive actions. Encounters frequent conflict with peers which he resolves by aggressive behavior.



LARGE CLASSROOM (continued)

2. Behavior which suggests flexibility and adaptability
  - a. Child who can shift from wild excitement to relaxed play, from distractability to intense involvement, from aimless wandering to smooth performance.

The Center for Effecting Educational Change (CEEC), a planning, research, and development arm of the Fairfax County Public Schools, began operations in July, 1967, under Title III of the Elementary and Secondary Education Act (ESEA) of 1965. The Center's major research objective was the study of systematic change as it might be employed in a school system. As vehicles for its major research objective, CEEC chose several school programs, including kindergarten.

*Child Study-kindergarten, 1968-69: An Information Report*, is the third publication to come out of the kindergarten study. Preceding were *Kindergarten 1967-68: An Evaluation Report* and the CEEC monograph, *The Change Process in Action: Kindergarten*.

Dorsey Baynham  
Editor

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